Request for RCRA Class 2 Permit Modification in Accordance with 20.4.1.900 NMAC (incorporating 40 CFR Part 270)

Waste Isolation Pilot Plant
Carlsbad, New Mexico

Date
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Consistent with requirements of 20.4.1.900 New Mexico Administrative Code (NMAC) (hereafter referred to as Part 270 or Section 270.XX) the U.S. Department of Energy, Carlsbad Area Office is submitting to the New Mexico Environment Department (NMED) a request for Class 2 modifications to the Hazardous Waste Facility Permit (#NM4890139088-TSDF) for the Waste Isolation Pilot Plant (WIPP). Specifically, this information is provided to comply with the requirements of 20.4.1.900 NMAC (incorporating 40 CFR 270.42(b)).

Requested modifications are listed in Table 1. Listed information includes a reference to the applicable section of the permit, the title of the item and the relevant permit modification category as identified in 20.4.1.900 NMAC. More complete descriptions of the Class 2 modifications are provided in Attachment A.

The changes do not reduce the capacity of the facility to protect human health or the environment.

Table 1. Class 2 RCRA Permit Modification

No.	Affected Permit Section	Item	Category	Attachment A Page #
1	a. Module II b. Module III c. A d. B e. B1 f. B2 g. B3 h. B4 I. B5 j. B6 k. D l. D1 m. E n. F o. G p. H q. I3 r. M1 s. O	Increase storage capacity; expand storage locations, extend storage time and allow shipment of partially characterized waste to WIPP.	F.1.b	A-1
2	a. Module II b. B c. B1 d. B3 e. B4 f. B6	Combine Project Level and Permittees Level of Review, Substitution of Characterization at WIPP for Off-Site Audit Program	B.2.a	A-54

Attachment A

Descriptions of RCRA Permit Modification

Item 1
Storage Capacity Increase; Storage Area Expansion and Shipment of Partially Characterized Waste to WIPP

Description:

Revise the quantity of TRU mixed waste that can be stored at the WIPP facility. The increase in storage capacity will not exceed 25% of the current capacity. Expand the areas in which TRU mixed waste may be stored. Allow the shipment of waste characterized to 20.4.1.300 NMAC (incorporating 40 CFR Part 262) requirements to be received for disposal characterization at WIPP. Allow increased storage time per the requirements of 20.4.1.500 NMAC (incorporating 40 CFR Part 264, Subpart I).

Basis:

The increase in storage capacity and permitted storage areas will allow WIPP the ability to characterize waste from a variety of locations throughout the United States without impacting its current ability to manage characterized waste for disposal. 20.4.1.900 NMAC (incorporating 40 CFR 270.42 Appendix I (F.1.b)) specifically states that an increase in container storage capacity of no more than 25% falls into the category of a Class 2 permit modification.

Discussion:

The United States Environmental Protection Agency (USEPA) in its preamble to the Final Rule For Permit Modifications for Hazardous Waste Management Facilities has stated that permits must be viewed as living documents that can be modified to allow facilities to make technological improvements, comply with new environmental standards, respond to changing waste streams and generally improve waste management practices. Since permits are written for extended periods of operation, the facility cannot anticipate all of the administrative, technical or operational changes required over the permit term for the facility to maintain an up-to-date operation.

The Department of Energy (DOE) requires such a modification to the current Hazardous Waste Permit so as to maintain an efficient and environmentally protective policy in managing TRU waste.

The main mission of the WIPP facility is to manage waste from United States defense related activities in an expedient, cost-effective and environmentally sound manner so that the facilities that generate and store these waste may be closed as rapidly as possible. This requires adequate characterization of the waste for disposal at WIPP. However, many sites will have substantial difficulties complying with the characterization requirements imposed on the generator sites by the Permit.

The most logical pathway to resolve this problem is a centralized waste characterization facility and the most logical choice for the location is the WIPP waste disposal facility. Locating a centralized waste characterization facility at WIPP is driven by various safety, environmental and fiduciary concerns. These include:

1. The WIPP houses the underground TRU waste repository, the point of disposal for this waste, and therefore, characterizing waste at WIPP will reduce the need to transport TRU waste more than one time.

2. The use of the WIPP facility for waste characterization will accelerate removal and disposal of waste by reducing the time required for multiple facility audits.

3. The ability to consolidate TRU mixed waste at WIPP for characterization significantly reduces the financial burden on taxpayers.

4. The National Academy of Science in their recent report entitled "Improving Operations and Long-Term Safety of the Waste Isolation Pilot Plant" has stated that "The committee recommends that waste management procedures be reviewed and revised, with reduction of risk and cost as guiding principles".

In an effort to operate the WIPP facility in an environmentally sound and fiscally responsible manner, it is necessary to modify the existing permit to include the following activities:

- Increase the storage capacity at the WIPP facility. An increase of 1077 cubic feet (30.4) cubic meters will allow WIPP to remove TRU mixed wastes nationwide, thereby reducing the overall environmental impact relegated to numerous DOE facilities.

- Concurrent with the increase in capacity will be an expansion of the areas within the WHB that TRU waste may be stored. The additional waste storage areas will be in the Waste Handling Building (WHB) and are designated the Northwest Storage Area (Room 108), the West Central (WC) Storage Area and Room 112.

- Allow for the shipment of partially characterized waste to WIPP. This waste will have undergone sufficient characterization to comply with the requirements of 20.4.1.300 NMAC (incorporating 40 CFR § 262.11). Sufficient information (e.g. the absence of prohibited items) will be known to safely transport waste to WIPP and to store these containers in compliance with applicable regulations and the Permit.

- An increase in the length of time that containers may be stored at WIPP to comply with the requirements specified in 20.4.1.500 NMAC (incorporating 40 CFR Part 264, Subpart I).

The information which must be known to store waste at WIPP includes the following:

- Applicable hazardous waste codes per the requirements of 20.4.1.300 NMAC (incorporating 40 CFR § 262.11(c)).

- Shipping description for the waste so that the requirements of 20.4.1.300 NMAC (incorporating 40 CFR § 262.11(c)) as well as applicable Department of

Transportation requirements are met.

- Assignment of the waste stream description by Waste Matrix Code using the criteria specified in 20.4.1.300 NMAC (incorporating 40 CFR §262.11(c)).

- Determination of the absence of prohibited items using 20.4.1.300 NMAC (incorporating 40 CFR § 262.11(c)).

- Determination of compatibility using 20.4.1.300 NMAC (incorporating 40 CFR § 262.11(c)).

Upon receipt of the waste at WIPP additional testing and confirmation will be performed. This additional effort will ensure that the waste is sufficiently characterized for disposal in accordance with 20.4.1.500 NMAC (incorporating 40 CFR Part 264). This will include:

- Headspace gas sampling and analysis to verify that room-based Volatile Organic Compounds (VOC) concentration limits are not exceeded.

- Radiography to verify the physical form of the waste and to verify that no free liquids, residual liquids in excess of one percent (1%), or compressed gasses are within the container or visual examination in lieu of radiography (where visual examination may consist of a review of audio/video tapes of the container at the time of packaging).

- Visual examination as a method by which radiography may be confirmed.

To complete these tasks it is necessary to increase the volume and area of container storage at WIPP.

The container storage in Room 108 will be segregated into two distinct storage areas: “Characterized Waste” and “Waste Not Sufficiently Characterized For Disposal”. As containers proceed through the characterization process they will be staged in a permitted storage area until such time as a sufficient number of containers can be configured for disposal in the underground repository. The containers in the WC Storage Area and Room 112 may be either characterized waste or waste that is not sufficiently characterized for disposal.

Containers undergoing characterization will be stored on pallets or in bermed containment areas which meet the requirements specified within 20.4.1.500 NMAC (incorporating 40 CFR § 264.175). Containers will remain on pallets or in bermed containment areas except when in the process of waste characterization or when being managed on facility pallets for disposal in the underground repository.

The containers will be handled in a manner to comply with the requirements specified within 20.4.1.500 NMAC (incorporating 40 CFR Part 264). Containers which are not in the process of characterization will be placed in a permitted storage area at the end of each working day.

In the unlikely event that a prohibited item as specified in the TSDF-WAC is discovered during the characterization process the following steps will be taken:

- The non-compliant item will be removed from the container and placed in a separate container. This container will be moved to a permitted storage area and the original container will continue through the characterization process.

- The generator of the waste container will be contacted and informed that a prohibited item was transported to the WIPP facility.

- The resolution to the problem may include any of the following:

    1. Transport the prohibited item back to the original generator
    2. Transport the prohibited item to another treatment, storage, or disposal facility
    3. Manage the prohibited item as appropriate with NMED approval

In all cases any prohibited items will be managed in accordance with the applicable portions of 20.4.1.300 NMAC (incorporating 40 CFR Part 262) and 20.4.1.500 NMAC (incorporating 40 CFR Part 264).

Rooms 108 and the VE Containment Structure will be operated under negative pressure and exhausted through HEPA filtration in order to provide appropriate radiation confinement as required by Permit Attachment B1-1a.

The currently permitted storage capacity of the WIPP facility is 4309 cubic feet (122 cubic meters). The proposed increase in the storage capacity is 1077 cubic feet (30.4 cubic meters) which is an increase of 25%.

Current USEPA hazardous waste regulations as adopted by NMED state that permitted hazardous waste storage facilities may store waste for an indeterminate length of time. This storage time allows facilities to manage waste in a proper manner to ensure regulatory compliance.

The DOE originally proposed a one year storage time for waste containers. A comment from the public stated that one year storage was not necessary since the WIPP facility was a disposal site. Based on that comment the NMED reduced storage at the WIPP facility to sixty days. Both the commentor and the NMED failed to consider that the WIPP facility is both a **storage** and disposal facility and, consequently, there are no time limits for storage. See 20.4.1.500 NMAC (incorporating 40 CFR 264 Subpart I).

Therefore, the DOE requests that the WIPP facility be granted the same storage limitations that already exist at other hazardous waste storage, treatment and disposal facilities both within New Mexico and throughout the United States.

Revised Permit Text: **(Note that in several instances, the changes in this modification affect text for which a Class 2 modification is pending. In such cases, the text of the pending modification is shown in regular text italics as follows: *redline*, ~~*strikeout*~~)**

a. 1. Module II.B.1

The Permittees may receive off-site TRU mixed waste either for disposal or for characterization prior to disposal in compliance with the requirements and conditions specified in this Permit. The Permittees may only ~~receive~~ dispose of TRU mixed waste ~~from those sites~~ which comply~~ies~~ with the applicable requirements of the Waste Analysis Plan (**WAP**) specified in Permit Condition II.C.1 and Permit Attachment B, as required by 20.~~NMAC~~ 4.1.500 NMAC (incorporating 40 CFR § 264.13(a)) and as verified ~~through the Permittees' Audit and Surveillance Program~~ as specified in Permit Condition II.C.2.

Full characterization of TRU waste (excluding the characterization required for transportation), will be performed at either the WIPP (referred to as on-site characterization) or at an off-site facility. Therefore, for the purposes of implementation of waste characterization activities as specified in this permit, the designation "generator/storage" site may be interpreted to include the off-site generator/storage sites or the WIPP facility for those wastes stored at WIPP for subsequent characterization.

a. 2. Module II.C.1

Waste Analysis Plan

The Permittees shall not ~~manage, store, or~~ dispose TRU mixed waste at WIPP which fails to meet the characterization requirements of 20 ~~NMAC~~ 4.1.500 NMAC incorporating 40 CFR §264.13), as specified in the Permit.

a. 3. Module II.C.1.a

Implementation of requirements - the Permittees shall require that generator/storage sites implement applicable requirements of the WAP, specified in Permit Attachment B, prior to the Permittees' ~~receipt~~ disposal of TRU mixed waste from a generator/storage site.

a. 4. Module II.C.1.e

Acceptable knowledge - The Permittees shall require the off-site generator/storage sites to assemble acceptable knowledge documentation ~~and confirm acceptable knowledge determinations~~, as necessary to comply with the requirements specified 20.4.1.300 NMAC (incorporating 40 CFR Part 262). In addition, facilities that perform disposal characterization must confirm acceptable knowledge in accordance with the Waste Analysis Plan in this Permit.

a. 5. Module II.C.1.g

WIPP Waste Information System (**WWIS**) database - the Permittees shall provide the Secretary access to the WWIS database as necessary to determine compliance with the WAP. The WWIS shall meet all requirements presented in Section B-4b(1)(I) of the WAP, Permit Attachment B, prior to ~~acceptance~~ approval of TRU mixed waste for disposal. The Secretary's access to the WWIS shall be direct, read-only (via modem or Internet) to all query and reporting functions of the Characterization, Certification, Shipping, and Inventory modules of the WWIS database.

a. 6. Module II.C.2

The Permittees shall not ~~manage, store, or~~ dispose TRU mixed waste at WIPP from an off-site generator/storage site until the following conditions have been met as necessary for the Secretary to determine that the characterization requirements of Permit Condition II.C.1 have been implemented:

a. 7. Module II.C.3

The Permittees shall not ~~accept~~dispose, of any TRU mixed wastes at WIPP ~~for storage, management, or disposal which~~ that fails to meet the applicable criteria specified in the ~~treatment, storage, and disposal facility waste acceptance criteria~~ TSDF-WAC as presented in Permit Conditions II.C.3.a through II.C.3.k of this Permit.

II.C.3.i Headspace gas sampling and analysis - any waste *that does not have VOC concentration values reported for the headspace* ~~*which has not undergone headspace gas sampling and analysis to determine concentration of VOCs*~~ ~~is not acceptable~~ shall not be disposed of at WIPP.

II.C.3.j Radiographic / visual examination - any waste container which has not undergone either radiographic or visual examination ~~is not acceptable~~ shall not be disposed of at WIPP.

II.C.3.k Waste stream profiles - any waste container from a waste stream which has not been preceded by an appropriate~~, certified~~ Waste Stream Profile Form (Attachment B, Figure B-1) is not acceptable for disposal at WIPP.

b. 1. Module III.A.1

The Waste Handling Building Container Storage Unit (**WHB Unit**) is located in the Waste Handling Building (**WHB**) at the WIPP facility. The WHB comprises a total enclosed area of approximately 84,000 ft^2 (7,804 m^2). The WHB Unit shall comprise a surface area of no more than ~~33,175~~ 44,425 ft^2 (~~3,082~~ 4,131.6 m^2) within the WHB CH Bay, the NW storage area (Room 108), the West Central (WC) Storage Area and Room 112, as depicted in Permit Attachment M1, Figure M1-1.

b. 2. Module III.A.1.a.

Storage containers - the Permittees shall store TRU mixed waste in containers specified in Permit Condition III.C.1, IV.C.1. If, during container storage or waste characterization, a prohibited item is discovered the Permittees shall remove that item from its container and place it in another container for management.

b. 3. Module III, Table III.A.1

Table III.A.1 - WHB Unit			
Description	**Area**	**Maximum Capacity**	~~**Container Equivalent**~~
TRUDOCK Storage Area	4,734 ft^2 (440 m^2)	530.4 ft^3 (15 m^3)	~~Contents of 4 TRUPACT-IIs~~
NE Storage Area	2,924 ft^2 (272 m^2)	1856 ft^3 (52.6 m^3)	~~7 loaded facility pallets~~
SE (Shielded) Storage Area	292.5 ft^2 (27.2 m^2)	265 ft^3 (7.5 m^3)	~~1 loaded facility pallet~~
Derived Waste Storage Area	48 ft^2 (4.46 m^2)	66.3 ft^3 (1.88 m^3)	~~1 Standard Waste Box~~
NW Storage Area (Room 108)	6100 ft^2 (567 m^2)	1047 ft^3 (29.6 m^3)	
WC Storage Area	750 ft^2 (69.75 m^2)	30 ft^3 (0.85 m^3)	
Room 112	5,000 ft^2 (465 m^2)	30 ft^3 (0.85 m^3)	
Total	**--**	**~~2718~~3795 ft^3*** **(~~77~~107.4 m^3)**	~~--~~

* The total capacity of these areas is 3795 cubic feet (107.4 cubic meters). The distribution of that total capacity is at the discretion of the Permittees so long as the individual area capacities listed in Table III.A.1 are not exceeded.

b. 4. Module III.A.1.c

Storage on ~~facility~~ pallets - the Permittees shall store TRU mixed waste containers ~~unloaded from the Transuranic Package Transporter, Design II (**TRUPACT-II**) shipping containers~~ on ~~facility~~ pallets or, if during the waste characterization process in bermed areas, while in the WHB Unit~~, as described in Permit Attachment M1, Section M1-1c(1)~~.

b. 5. Module III.A.1.e

Storage ~~time limit~~ - the Permittees shall not store a TRU mixed waste container in the WHB Unit ~~for more than sixty (60) calendar days, with the exception of the Derived Waste Storage Area, where derived waste may be accumulated and stored until the container is full.~~ in~~n~~ violation of the container requirements as specified within 20.4.1.500 NMAC~~.4.1.500~~ (incorporating 40 CFR Part 264, Subpart I).

b. 6. Module III.B.1.a

Waste analysis plan - the TRU mixed waste shall be characterized, prior to disposal, to comply with the waste analysis plan specified in Permit Condition II.C.1.

b. 7. Module III.B.2.

Prohibited Waste
The Permittees shall not dispose ~~store or manage~~ any TRU mixed waste that fails to comply with Permit Condition III.B.1.

b. 8. Module III.E

The Permittees shall manage all containers as specified in Permit Attachment M1 and shall keep all containers closed during storage, except when it is necessary to perform waste characterization activities in accordance with this permit or add waste to derived waste containers. The Permittees shall not open, handle, or store containers in a manner which may rupture the container or cause it to leak, as required by 20.~~NMAC~~ 4.1.500 NMAC (incorporating 40 CFR §264.173).

c. Attachment A-4

There are three basic groups of structures associated with the WIPP facility: surface structures, shafts and underground structures. The surface structures accommodate the personnel, equipment, and support services required for the receipt, characterization when required, preparation, and transfer of TRU mixed waste from the surface to the underground. There are ~~two~~ three surface locations where TRU mixed waste will be managed. The first includes a portion of the Waste Handling Building (**WHB**), of which ~~33,175~~ 44,425 square feet is designated as the WHB Container Storage Unit (WHB Unit) for TRU mixed waste management. The second area designated for managing TRU mixed waste is the Parking Area Container Storage Unit (Parking Area Unit), an outside container storage area which extends south from the WHB to the rail siding. The Parking Area Unit provides storage space for up to 12 loaded TRUPACT-II shipping containers on an asphalt and concrete surface encompassing approximately 115,000 square feet. The third area is Building 412 where some waste characterization activities will be conducted.

d. 1. Attachment B Introduction

This waste analysis plan (**WAP**) has been prepared for management, storage, or disposal activities to be conducted at the Waste Isolation Pilot Plant (**WIPP**) facility to meet requirements set forth in 20.~~NMAC~~ 4.1.500 NMAC (incorporating 40 CFR §264.13). Guidance in the most recent U.S. Environmental Protection Agency (**EPA**) manual on waste analysis has been incorporated into the preparation of this WAP (EPA, 1994). This WAP includes test methods, details of planned waste sampling and analysis, a description of the waste shipment screening and verification process, and a description of the quality assurance (**QA**)/quality control (**QC**) program. Before ~~the Permittees manage, store, or dispose~~ disposal of transuranic (**TRU**) mixed waste from a generator/storage site (**site**) will occur, the Permittees shall require ~~that site to~~ implementation of the applicable requirements of this WAP.

Characterization of TRU waste (excluding the characterization required for transportation), will be performed at either the WIPP (referred to as on-site characterization) or at a off-site facility. Therefore, for the purposes of implementation of waste characterization activities as specified in this permit, the designation “generator/storage” site means the off-site generator/storage sites. For waste characterized at WIPP, specific requirements are identified throughout the WAP.

TRU mixed waste that may be stored or disposed at WIPP are or were generated at DOE generator/storage sites by various specific processes and activities. Examples of the major types of operations that generate this waste include:

- Production of Nuclear Products—Production of nuclear products includes reactor operation, radionuclide separation/finishing, and weapons fabrication and manufacturing. The majority of the TRU mixed waste was generated by weapons fabrication and radionuclide separation/finishing processes. More specifically, wastes consist of residues from chemical processes, air and liquid filtration, casting, machining, cleaning, product quality sampling, analytical activities, and maintenance and refurbishment of equipment and facilities.

- Plutonium Recovery—Plutonium recovery wastes are residues from the recovery of plutonium-contaminated molds, metals, glass, plastics, rags, salts used in electrorefining, precipitates, firebrick, soot, and filters.

- Research and Development (**R&D**)—R&D projects include a variety of hot cell or glovebox activities that often simulate full-scale operations described above, producing similar TRU mixed wastes. Other types of R&D projects include metallurgical research, actinide separations, process demonstrations, and chemical and physical properties determinations.

- Decontamination and Decommissioning—Facilities and equipment that are no longer needed or usable are decontaminated and decommissioned, resulting in TRU mixed wastes consisting of scrap materials, cleaning agents, tools, piping, filters, Plexiglas™, gloveboxes, concrete rubble, asphalt, cinder blocks, and other building materials. These materials are expected to be the largest category by volume of TRU mixed waste to be generated in the future.

TRU mixed waste contains both TRU radioactive and hazardous components, as defined in 20 NMAC 4.1.800 (incorporating 40 CFR, §268.35(d)), and in the Federal Facility Compliance Act, Public Law 102- 386, Title 1, §3021(d). It is designated and separately packaged as either contact-handled (**CH**) or remote-handled (**RH**), based on the radiological dose rate at the surface of the waste container. RH TRU mixed wastes will not be received and disposed at the WIPP facility.

The hazardous components of the TRU mixed waste to be managed at the WIPP facility are designated in the Permittees' RCRA Part A Permit Application (Permit Attachment O). Some of the waste may be identified by unique state hazardous waste codes. These wastes are acceptable at the WIPP as long as the Treatment, Storage or Disposal Facility Waste Acceptance Criteria (TSDF-WAC) in Module II.C.3 are met. This WAP describes the measures that will be taken to assure that the TRU mixed wastes ~~received~~ disposed at the WIPP facility are within the scope of the RCRA Part A Permit Application (Permit Attachment O) as established by 20.~~ NMAC~~ 4.1.500 NMAC (incorporating 40 CFR ~~§~~Part 264), and that they comply with unit-specific requirements of 20.~~ NMAC~~ 4.1.500 NMAC (incorporating 40 CFR §264.600), Miscellaneous Units.

d. 2. Attachment B Introduction

~~All w~~ Waste characterization activities ~~specified in this WAP and associated Permit Attachments~~ shall be carried out at generator/storage sites ~~and~~ or, as applicable, at the WIPP facility in accordance with this WAP and associated Permit Attachments. The Permittees will audit off-site generator/storage site waste characterization programs and activities, as described in Section B-3.

Generator/storage sites who intend to ship waste to WIPP for characterization and disposal must

perform the following activities prior to waste shipment:

- Compile (or assist the Permittees in compiling) relevant acceptable knowledge documentation regarding the waste stream.
- Make a hazardous waste determination in accordance with 20.4.1.300 NMAC (incorporating 40 CFR 262.11(a)) or the equivalent regulation in the generator/storage site's state
- For waste that is a hazardous waste, assign the appropriate USEPA hazardous waste code(s) in accordance with 20.4.1.300 NMAC (incorporating 40 CFR Part 262.11 (b) or (c)) or the equivalent regulation in the generator/storage site's state
- Assign the appropriate State hazardous waste code(s) for those States that have their own unique State hazardous waste codes
- Package, label and mark the waste in accordance with 20.4.1.300 NMAC (incorporating 40 CFR Part 262.30, 31 and 32) or the equivalent regulation in the generator/storage site's state
- Manifest the waste in accordance with 20.4.1.300 NMAC (incorporating 40 CFR Part 262.20 and 23) or the equivalent regulation in the generator/storage site's state
- Assignment of a waste stream description by Waste Matrix Code Group
- Provide a certification that the waste contains no prohibited items and meets the compatibility requirements of Permit Condition II.C.3.d.

Waste characterization activities ~~at the generator/storage sites~~ include the following, although not all these techniques will be used on each container, as discussed in Section B-3:

- Radiography, which is an x-ray technique to determine physical contents of containers
- Visual examination of opened containers as an alternative way to determine their physical contents or to verify Radiography results
- Headspace-gas sampling to determine VOC content of gases in the void volume of the containers
- Sampling and analysis of waste forms that are homogeneous and can be representatively sampled to determine concentrations of hazardous waste constituents and toxicity characteristic contaminants of waste in containers
- Compilation of acceptable knowledge documentation into an auditable record[1]
- For those generator/storage sites that ship fully characterized waste to WIPP, full compliance with the applicable portions of the TSDF-WAC is necessary prior to shipment.

[1] "Auditable records" mean those records which allow the Permittees to conduct a systematic assessment, analysis, and evaluation of the Permittees compliance with the WAP and this Permit.

- For those generator/storage sites that will use WIPP waste characterization facilities the waste generator requirements of 20.4.1.300 NMAC (incorporating 40 CFR § 262.11) or the equivalent regulation in the generator/storage site's state must be met prior to shipment to WIPP. The remainder of the waste characterization requirements must be met prior to disposal.

Consistent with 20.4.1.300 NMAC (incorporating 40 CFR Part 262.11), generator/storage sites waste characterization can be done by testing or acceptable knowledge (AK). Once the required AK waste characterization information is compiled ~~complete~~, the generator/storage site will complete ~~a~~ the applicable portions of a Waste Stream Profile Form (as indicated in Figure B-1) to document ~~the results of their~~ AK and other available characterization ~~activities~~ information (Section B-1d). The Waste Stream Profile Forms and, for waste characterized at the generator/storage sites, the Characterization Information Summary for the waste stream ~~resulting from waste characterization activities~~ shall be transmitted to the Permittees, reviewed for completeness, and screened for acceptance ~~prior to loading any TRU mixed waste into the Transuranic Package Transporter (**TRUPACT-II**) at the generator facility, as described in Section B-4.~~ Only TRU mixed waste and TRU waste that has been characterized in accordance with this WAP and that meets the Treatment, Storage, and Disposal Facility Waste Acceptance Criteria (**TSDF-WAC**) specified in this Permit ~~will be accepted at the WIPP facility~~ is acceptable for disposal in a permitted Underground Hazardous Waste Disposal Unit (**HWDU**).

Implementation of the TSDF-WAC in this permit may be phased depending on whether waste is being characterized fully at the off-site generator/storage site or if some portion of the characterization is to be performed at the WIPP. At a minimum, those facilities shipping waste to WIPP must demonstrate that the waste meet applicable transportation requirements (i.e., hazardous waste codes, physical form) and the storage requirements (i.e., hazardous waste codes, physical form, absence of prohibited items). This demonstration can be based on acceptable knowledge (AK), as defined in this Permit, and applicable requirements of 20.4.1.300 NMAC (incorporating 40 CFR Part 262) or the equivalent regulation in the generator/storage site's state. In addition, the following characterization requirements apply:

d. 3. Attachment B-1a

TRU mixed waste destined for disposal at WIPP will be characterized on a waste stream basis. ~~Generator/storage sites will delineate~~ The delineation of waste streams will be performed at the generator/storage sites using acceptable knowledge. Required acceptable knowledge is specified in Section B-3b and Permit Attachment B4. If acceptable knowledge for retrievably stored waste does not comply with these requirements (i.e., heterogenous Debris Waste in Summary Category S5000), the Permittees will reexamine (and characterize) the waste in the same manner as newly generated waste.

All of the waste within a waste stream may not be available for sampling and analysis at one time. In these instances, generator/storage sites, or the Permittees for those waste being characterized at the WIPP facility, may divide waste streams into waste stream lots based on staging, transportation, or handling issues. Characterization activities shall then be undertaken on a waste stream lot basis. A Waste Stream Profile Form need not be submitted for subsequent waste stream lots unless warranted by the characterization information.

d. 4. Attachment B-1b

Once a waste stream has been delineated, ~~generator/storage sites will assign~~ a Waste Matrix Code will be assigned to the waste stream based on the physical form of the waste. Waste

streams are then assigned to one of three broad Summary Category Groups; S3000-Homogeneous Solids, S4000-Soils/Gravel, and S5000-Debris Wastes. These Summary Category Groups are used to determine further characterization requirements.

d. 5. Attachment B-1c

The following TRU mixed waste are prohibited at the WIPP facility as noted:

- any waste container *that does not have VOC concentration values reported for the headspace* ~~*which has not undergone headspace gas sampling and analysis to determine concentration of VOCs*~~ shall not be disposed

- any waste container which has not undergone either radiographic or visual examination shall not be disposed of at WIPP

- any waste container from a waste stream which has not been preceded by an appropriate, ~~certified~~ Waste Stream Profile Form (~~see Section B-1d~~ Attachment B, Figure B-1)is not acceptable for disposal at WIPP

Before ~~accepting~~ disposing a container holding TRU mixed waste, the Permittees will ensure, in accordance with the WAP ~~through audit~~ and as part of their Permittee-level data reviews (Section B3-10c), that generator/storage sites examine the radiography or visual examination data records (Section B-4b) to verify that the container holds no unvented compressed gas containers and that residual liquid does not exceed 1 percent volume in any payload container. If discrepancies or inconsistencies are detected during the data review, the generator/storage site will review the radiography video tape or visual examination tape to verify that the observed physical form of the waste is consistent with the waste stream description provided by the generator and to ensure that no prohibited items are present in the waste. Radiography tapes, from waste not characterized at WIPP, will be selected randomly from at least one percent of containers received at WIPP and will be reviewed and compared to radiographic data forms. All personnel who review radiography video tapes will be trained to the same standard as radiography operators. Section B-4 includes a description of the waste verification process that the Permittees will conduct prior to ~~receiving a shipment~~ waste disposal at the WIPP facility.

d. 6. Attachment B-1d

Generator/storage sites will provide, as appropriate, the above mentioned information on the Waste Stream Profile Form to the Permittees for each waste stream prior to its acceptance for disposal at WIPP. The minimum amount of waste characterization information required to ship waste to the WIPP facility is included in Section A of the Waste Stream Profile Form. This information may be based on acceptable knowledge (AK) or on sampling and analysis. If sampling and analysis has not been performed on a waste stream, that portion of the Waste Stream Profile Form (Section B) will be completed as the additional waste characterization is performed.

For those waste streams characterized at the generator/storage site, t~~T~~he Waste Stream Profile Form and the Characterization Information Summary containing the AK, and as available, other waste characterization data will be transmitted to the Permittees for each waste stream from a generator/storage site. If continued waste characterization reveals discrepancies that identify different hazardous waste codes or indicates that the waste belongs to a different waste stream, the waste will be redefined to a separate waste stream and a new Waste Stream Profile Form submitted.

The Permittees are responsible for the review of Waste Stream Profile Forms (Section B3-12b(1)) and Characterization Information Summaries to verify compliance with the restrictions on TRU mixed wastes for WIPP receipt, storage, and disposal. The Permittees will submit completed Waste Stream Profile Forms to NMED prior to waste stream ~~shipment~~ disposal. The Permittees will also be responsible for the review of shipping records (Section B-4b) to verify that each waste container has been adequately prepared and characterized~~ in accordance with applicable provisions of this WAP. Waste characterization data shall confirm the absence of prohibited items specified in Section B-1c.~~ The Permittees will be responsible for identifying any additional waste characterization activities that shall be required for disposal of the waste.

d. 7. Attachment B-2

The following waste analysis parameters shall be characterized~~ at the generator/storage sites~~ prior to disposal at WIPP:

d. 8. Attachment B-3

The characterization techniques ~~used by generator/storage sites~~ include~~s~~ acceptable knowledge, which incorporates confirmation by headspace-gas sampling and analysis, radiography, and homogeneous waste sampling and analysis. All confirmation characterization activities are performed in accordance with the WAP. Table B-6 provides a summary of the characterization requirements for TRU mixed waste.

d. 9. Attachment B-3a(1)

Measured headspace VOC concentrations in waste containers ~~received~~ disposed at the WIPP facility will be compared routinely and in accordance with the requirements in Permit Attachment N, to ensure that, on an annual basis, there are no associated adverse worker or public-health impacts.

d. 10. Attachment B-3a(3)

The Permittees will ensure that ~~generator/storage sites conduct~~ analyses conducted for the WIPP Waste Characterization Program use~~using~~ laboratories that are qualified through participation in the Performance Demonstration Program (DOE, 1995c, d). Required QAOs are specified in Permit Attachment B3. In addition, methods and supporting performance data demonstrating QAO compliance shall be ensured by the Permittees during the annual certification audit.

d. 11. Attachment B-3c

Radiography is a nondestructive qualitative and quantitative technique that involves X-ray scanning of waste containers to identify and verify waste container contents. Visual examination (**VE**) constitutes opening a container and physically examining its contents. VE can be used in lieu of radiography. The waste characterization technique of VE may be implemented during various times, such as waste packaging/repackaging, or during a stage of additional waste characterization. As long as VE follows procedures that assure that the data quality objectives of this WAP are met and the data are documented on visual examination data forms, an audio/video tape of the actual VE may be considered representative of the activity and may substitute for the activity. In the case where the form of VE used involves reviewing 100% of the audio/video tapes, radiography is not required. Radiography and/or VE~~ visual examination~~ will

be used to ~~examine~~ verify the physical form of the waste in every waste container. ~~to verify its physical form.~~ These techniques can detect liquid wastes and containerized gases, which are prohibited for WIPP disposal. The prohibition of liquids and containerized gases prevents the shipment of corrosive, ignitable, or reactive wastes. Radiography and/or VE will also be able to confirm that the physical form of the waste matches its waste stream description (i.e. Homogeneous Solids, Soil/Gravel, or Debris Waste [including uncategorized metals]). If the physical form does not match the waste stream description, the waste will be designated as another waste stream and assigned the preliminary hazardous waste codes associated with that new waste stream assignment. That is, if radiography and/or VE indicates that the waste does not match the waste stream description arrived at by acceptable knowledge characterization, a non-conformance report will be completed and the inconsistency will be resolved as specified in Permit Attachment B4. The proper waste stream assignment will be determined (including preparation of a new Waste Stream Profile Form), the correct hazardous waste codes will be assigned, and the resolution will be documented. Refer to Permit Attachment B4 for a discussion of acceptable knowledge and its confirmation process.

~~Generator/storage sites may conduct v~~Visual examination of waste containers may be conducted in lieu of radiography. For off-site generator/storage sites that choose to use visual examination in lieu of radiography, the detection of any liquid waste in non-transparent inner containers, detected from shaking the container, will be handled by assuming that the container is filled with liquid and adding this volume to the total liquid in the payload container (e.g., 55 gallon drum or SWB). The payload container would be rejected and/or repackaged to exclude the container if it is over the TSDF-WAC limits.

d. 12. Attachment B-3d

~~Generator/storage sites will use acceptable knowledge to delineate all~~Delineation of TRU mixed waste containers into waste streams will be performed at the generator/storage sites for the purposes of grouping waste for further characterization. The analyses performed will not differ based on the waste stream, only on the physical form of the waste (i.e., heterogenous debris waste cannot be sampled for totals analyses). Both retrievably stored and newly generated wastes will be delineated in this fashion, though the types of acceptable knowledge used may differ. Section B-3b discusses the use of acceptable knowledge, sampling, and analysis in more detail. Acceptable knowledge is discussed more completely in Permit Attachment B4. Every waste stream will be assigned hazardous waste codes based upon acceptable knowledge, and the Permittees will confirm these designations using headspace gas (all Summary Category Groups) and solid sampling and analysis (Summary Category Groups S3000 and S4000 only).

d. 13. Attachment B-3d(2)

All retrievably stored waste containers will first be delineated into waste streams using acceptable knowledge. All retrievably stored waste containers will be examined using radiography to confirm the physical waste form (Summary Category Group), to verify the absence of prohibited items, and to determine the waste characterization techniques to be used based on the Summary Category Groups (i.e., S3000, S4000, S5000). Repackaged retrievably stored waste, or any retrievably stored waste with inadequate acceptable knowledge, will be characterized using either the retrievably stored or newly generated waste characterization process, whichever results in greater sampling requirements. Radiographic results will be compared to acceptable knowledge results to ensure correct Waste Matrix Code assignment and identification of prohibited items. If radiographic analysis do not confirm the physical waste form, waste will be reassigned as specified in Section B-3c. ~~Generator/storage sites may elect to substitute v~~Visual examination may be used in lieu of ~~for~~ radiographic analysis.

d. 14. Attachment B-4a(2)

The generator/storage sites or the WIPP facility shall demonstrate compliance with each QAO associated with the various characterization methods as presented in Permit Attachment B3. For waste characterized prior to shipment to the WIPP for disposal, Generator/Storage Site Project Managers are further required to perform a reconciliation at the project level of the data sets submitted by the various organizations at the generator/storage site with the DQOs established in this WAP. The Generator/Storage Site Project Manager shall conclude that all of the DQOs have been met for the characterization of the waste stream prior to submitting a Waste Stream Profile Form to the Permittees for disposal approval (Permit Attachment B3). For waste characterized at the WIPP facility, the Permittees are directly responsible for documenting that the DQOs have been met prior to authorizing disposal of a waste stream.

d. 15. Attachment B-4a(3)

~~The generator/storage sites will implement a~~A sample handling and control program will be implemented by organizations performing characterization for WIPP that will include the maintenance of field documentation records, proper labeling, and a chain of custody (**COC**) record. ~~The generator/storage site~~ A Quality Assurance Project Plan (**QAPjP**) or procedures referenced in the QAPjP will document this program and include COC forms to control the sample from the point of origin to the final analysis result reporting. For off-site characterization facilities, t~~T~~he Permittees will review and approve the QAPjP, including their determination that the sample control program is adequate. The approved QAPjP will be provided to NMED prior to shipment of TRU mixed waste and before the generator/storage site audit, as specified in Permit Attachment B5. Details of this sample control program are provided in Permit Attachment B1 and are summarized below to include:

d. 16. Attachment B-4a(4)

Batch Data Reports, in a format approved by the Permittees will be used ~~by each generator/storage site~~ for reporting waste characterization data. This format will be included in the ~~generator/storage site~~ QAPjP, controlled electronic databases, or procedures referenced in the QAPjP (Permit Attachment B5) and will include all of the elements required by this WAP for Batch Data Reports (Permit Attachment B3).

The Permittees shall perform audits of the~~ generator/storage site~~ waste characterization programs, as implemented by the ~~generator/storage site~~ QAPjP, to verify compliance with the WAP, and the DQOs in this WAP (See Permit Attachment B6 for a discussion of the content of the audit program). The primary functions of these audits are to review ~~generator/storage sites~~ adherence to the requirements of this WAP and assure adherence to the WAP characterization program. The Permittees shall provide the results of each audit to NMED. If audit results indicate ~~that a generator/storage site is not in~~ non-compliance with the requirements of this WAP, the Permittees will take appropriate action (Permit Attachment B6).

The Permittees shall further require all analytical laboratories analyzing WIPP waste characterization samples ~~for the generator/storage sites~~ to have established, documented QA/QC programs. The Permittees annually evaluate these laboratories and their QA/QC programs as part of their participation in the Permittees' Performance Demonstration Program (**PDP**) laboratory performance program. The Permittees' audits cover the requirements of the lab's QA/QC program, as well as compliance with this WAP. Continued compliance with these parameters will be verified by ongoing audits by the Permittees at the generator/storage sites as (Permit Attachment B6). The Permittees' audits of the generator/storage sites will verify that the

laboratories analyzing waste have been properly audited by the generator/storage sites. The laboratory's QA/QC program shall include the following:

d. 17. Attachment B-4a(5)

Batch Data Reports will document the testing, sampling, and analytical results from the required characterization activities, and document required QA/QC activities. For those sites characterizing waste off-site, d~~D~~ata validation and verification at both the data generation level and the project level will be performed as required by this Permit before the required data are transmitted to the Permittees (Permit Attachment B3). NMED may request, through the Permittees, copies of any Batch Data Report, and/or raw data validated by the generator/storage sites, to check the Permittees' audit of the validation and verification process. Batch Data Reports may include raw data if a site chooses to report it.

d. 18. Attachment B-4a(6)

Batch Data Reports will include the information required by Permit Attachment B3-10 and will be transmitted by hard copy or electronically (provided a hard copy is available on demand) from the data generation level to the project level.

Once a waste stream is fully characterized by an off-site generator/storage site, the Site Project Manager will also submit to the Permittees a Waste Stream Profile Form (Figure B-1) accompanied by the Characterization Information Summary for that waste stream which includes reconciliation with DQOs (Section B3-12b(1)). The Waste Stream Profile Form will be used as the basis for acceptance of waste characterization information on TRU mixed wastes to be disposed of at the WIPP. If a generator/storage site is sending waste to WIPP for characterization, then only Part A of the WSPF need be completed as appropriate.

The generator/storage site who characterizes waste prior to shipment to WIPP for disposal will transmit waste container information electronically via the WIPP Waste Information System (WWIS). Data will be entered into the WWIS in the exact format required by the database. Refer to Section B-4b for WWIS reporting requirements and the *WIPP Waste Information System User's Manual for Use by Shippers/Generators* (DOE.1997) for the WWIS data fields and format requirements.

d. 18. Attachment B-4a(7)

Records related to waste characterization activities ~~at the generator/storage sites~~ will be maintained in the testing, sampling, or analytical facility files, ~~or~~ generator/storage site project files or the WIPP facility operating record, depending on where waste characterization occurred. Contract laboratories will forward testing, sampling, and analytical records along with Batch Data Reports, to the generator/storage site project office for inclusion in the generator/storage site's project files. Raw data obtained by testing, sampling, and analyzing TRU mixed waste in support of this WAP will be identifiable, legible, and provide documentary evidence of quality.

Records inventory and disposition schedule (**RIDS**) or an equivalent system shall be prepared and approved by off-site generator/storage site personnel. All records relevant to an enforcement action under this Permit, regardless of disposition, shall be maintained at the off-site generator/storage site until NMED determines they are no longer needed for enforcement action, and then dispositioned as specified in the approved RIDS. All waste characterization data

and related QA/QC records in the off-site generator/storage site project files for TRU mixed waste ~~to be~~ disposed of at ~~shipped to~~ the WIPP facility are designated as either Lifetime Records or Non-Permanent Records. Records that are designated as Lifetime Records shall be maintained for the life of the waste characterization program at a participating off-site generator/storage site plus six years, then offered to the Permittees for permanent archival of information of these records in the appropriate form, or transferred to the appropriate Federal Records Center (**FRC**). Waste characterization records designated as Non-Permanent Records shall be maintained for ten years from the date of (record) generation and then dispositioned according to their approved RIDS. If an off-site generator/storage site ceases to operate, all records shall be transferred before closeout. Table B-7 provides a listing of records designated as Lifetime Records and Non-Permanent Records.

Waste characterization records generated at the WIPP facility shall become part of the WIPP facility operating record and shall be maintained at the facility until closure in accordance with 20.4.1.500 NMAC (incorporating 40 CFR §264.73(b)(3)).

d. 19. Attachment B-4b(1)

~~The first phase of the waste screening and verification process will occur before TRU mixed waste is shipped to the WIPP facility.~~ Before the Permittees begin the process of accepting TRU mixed waste from a generator/storage site that is characterizing waste prior to shipment to the WIPP for disposal, an initial audit of that ~~generator/storage~~ site will be conducted as part of the Permittees' Audit and Surveillance Program (Permit Attachment B6). The RCRA portion of the generator/storage site audit program will provide on-site verification of characterization procedures; Batch Data Report preparation; and record keeping to ensure that all applicable provisions of the WAP requirements are met. Another portion of the Phase I verification is the Waste Stream Profile Form approval process for waste streams characterized off-site by the generator/storage site. At the WIPP facility, this process includes verification that all of the required elements of a Waste Stream Profile Form are present and that the summarized waste characterization information meet acceptance criteria required for compliance with the WAP (Section B3-12b(1)).

Once a generator/storage site that is characterizing waste prior to shipment to the WIPP for disposal has prepared a QAPjP, which includes applicable WAP requirements, it is submitted to the Permittees for review and approval (Permit Attachment B5). Once approved, a copy of the QAPjP is provided to NMED for examination. The generator/storage site will implement the specific parameters of the QAPjP after it is approved by the Permittees. The initial generator/storage site RCRA audit for those facilities that are characterizing waste prior to shipment to the WIPP for disposal will be performed at some point after this implementation has taken place, but prior to shipment of TRU mixed waste from that generator/storage site to WIPP. Additional audits, focusing on the results of waste characterization, will be performed at least annually. The Permittees have the right to conduct unannounced audits and to examine any records that are related to the scope of the audit.

When the required waste stream characterization data have been collected by a generator/storage site that is characterizing waste prior to shipment to the WIPP for disposal and the initial ~~generator/storage~~ audit of that site ~~audit~~ has been successfully completed, the generator/storage Site Project Manager will then complete a WSPF and submit it to the Permittees, along with the accompanying Characterization Information Summary for that waste stream (Section B3-12b(1)). All data necessary to check to accuracy of the WSPF will be transmitted to the Permittees for verification. This provides notification that the generator/storage site considers that the waste stream (identified by the waste stream identification number) has

been adequately characterized for disposal prior to shipment to WIPP. The Permittees will compare headspace gas, radiographic, visual examination and solid sampling/analysis data obtained subsequent to submittal and approval of the WSPF (and prior to waste shipment) with characterization presented on this form. If the Permittee determines (through the data comparison) that the characterization information is adequate, the WSPF will be approved. Prior to the first shipment of containers from the approved waste stream, the approved Waste Stream Profile Form and accompanying Characterization Information Summary will be provided to NMED. If the data comparison indicates that analyzed containers have hazardous wastes not present on the Waste Stream Profile Form, or a different Waste Matrix Code applies, the Waste Stream Profile Form is in error and shall be resubmitted. Ongoing Waste Stream Profile Form examination is discussed in detail in Section B-4b(1)(ii).

For subsequent shipments, the generator/storage site will also transmit the data on a container basis via the WWIS prior to shipment of that container. This data submittal can occur at any time as the data are being collected, but will be complete for each container prior to shipment of that container. The WWIS will conduct internal edit/limit checks based on the approved WSPF. NMED will have read-only access to the WWIS as necessary to determine compliance with the WAP. The Permittees will compare ongoing sampling/analysis characterization data obtained and submitted via the WWIS to the approved WSPF. If this comparison shows that containers have hazardous wastes not reported on the Waste Stream Profile Form, or a different Waste Matrix Code applies, the data are rejected and the waste containers are not accepted for shipment.

If discrepancies arise as a result of the Phase I review, the generator/storage sites will be contacted by the Permittees and required to provide the necessary additional information to resolve the discrepancy before that waste stream is approved for disposal at the WIPP facility. If the discrepancy is not resolved, the waste stream will not be approved for disposal. The Permittees will notify NMED in writing of any discrepancies identified during WSPF review and the resulting discrepancy resolution prior to waste disposal. The Permittees will not manage, store, or dispose the waste stream until this discrepancy is resolved in accordance with this WAP.

Generator/storage sites that send waste to WIPP for characterization need only complete Part A of the Waste Stream Profile Form prior to shipment. The remainder of the information needed for the WSPF will be provided by the Permittees.

d. 20. Attachment B-4b(1)(i)

~~All generator/storage sites planning to ship TRU mixed waste to WIPP will supply the r~~Required characterization data will be supplied to the WWIS. The Permittees will use the WWIS to verify that all of the supplied data meet the applicable edit and limit checks prior to the ~~shipment~~ disposal of any TRU mixed waste at ~~to~~ WIPP. The WWIS automatically will ~~notify the generator/storage site~~ provide notification if any of the supplied data fails to meet the requirements of the edit and limit checks via an appropriate error message. ~~The generator/storage site will be required to correct the discrepancy~~ Discrepancies with the waste or the waste data ~~and re-transmit the corrected data~~ must be corrected and the data re-transmitted prior to acceptance of the data by the WWIS. For waste characterized off-site for disposal at WIPP t~~T~~he Permittees will review data reported for each container of each shipment prior to providing notification to the shipping generator/storage site that the shipment is acceptable. This additional review and notification is not required for waste characterized at the WIPP facility. Read-only access to the WWIS will be provided to the NMED. Table B-8 contains a listing of the data fields contained in the WWIS that are required as part of this Permit.

d. 21. Attachment B-4b(2)

Phase II of the waste shipment screening and verification process includes examination of a waste shipment after the waste shipment has arrived. The Phase-II determinations are: 1) a determination of the completeness and accuracy of the EPA Hazardous Waste Manifest; 2) a determination of waste shipment completeness; 3) a determination of land disposal restriction notice completeness; and 4) an identification and resolution of waste shipment irregularities. Only those waste containers that pass all Phase II waste screening determinations will be ~~emplaced~~ accepted, as appropriate, for characterization and/or disposal at WIPP. For each container shipped, the Permittees shall ensure that the generator/storage sites provide the following information:

Hazardous Waste Manifest Information:

- Generator/storage site name and EPA ID
- Generator/storage site contact name and phone number
- Quantity of waste
- List of the hazardous waste codes in the shipment
- Listing of all container IDs
- Signature of authorized generator representative

Land Disposal Restriction Notice Information (only required for the initial shipment of a waste stream):

- EPA Hazardous Waste Number(s)
- Hazardous waste manifest number
- Date the waste is subject to prohibition
- Note that the waste is not prohibited from land disposal at WIPP

Specific Container information:

- Waste Stream Identification Number
- List of Hazardous Codes per Container
- ~~Certification Data (Nuclide info, etc.)~~
- Shipping Data (Assembly numbers, ship date, shipping category, etc.)

This information shall also be supplied electronically to the WWIS. ~~The~~Relevant container-specific information will be supplied electronically as part of the ~~Level 3~~Permittee's Level Phase I Screening~~, and shall be supplied prior to the Permittees' management, storage, or disposal of the waste~~.

The Permittees will verify each ~~approved~~ shipment upon receipt at WIPP against the Part A of the WSPF information or against data on the WWIS shipment summary report, for waste characterized at off-site generator/storage facilities, to ensure containers have the required information. A Waste Receipt Checklist will be used to document the verification.

d. 22. Attachment B-4b(2)(i)

Discrepancies will be identified during manifest examination and container bar-code WWIS data comparison. A manifest discrepancy is a difference between the quantity or type of hazardous waste designated on the manifest and the quantity or type of hazardous waste the WIPP facility actually receives. A discrepancy may also be the inadvertent receipt of prohibited items. The generator/storage site technical contact (as listed on the manifest) will be contacted to resolve the discrepancy. If the discrepancy is identified prior to the containers being removed from the TRUPACT-II, the waste will be retained in the parking area. If the discrepancy is identified after the waste containers are removed from the TRUPACT-II, the waste will be retained in the Waste Handling Building (**WHB**) until the discrepancy is resolved. If a prohibited item is inadvertently shipped to the WIPP facility it will be removed from the original container, placed into another container and managed by either returning to the generator, shipment to an alternate treatment, storage, or disposal **(TSD)** facility or managed in an appropriate manner with NMED approval. Errors on the manifest can be corrected by the WIPP facility with a verbal (followed by a mandatory written) concurrence by the generator/storage site technical contact. All discrepancies that are unresolved within fifteen (15) days of receiving the waste will be immediately reported to the NMED in writing. Notifications to the NMED will consist of a letter describing the discrepancies, discrepancy resolution, and a copy of the manifest. If the manifest discrepancies have not been resolved within thirty (30) days of waste receipt, the shipment will be returned to the generator/storage facility. If it becomes necessary to return waste containers to the generator/storage site, a new EPA Uniform Hazardous Waste Manifest may be prepared by the Permittees. This 30-day limit does not apply to containers that are used to accumulate prohibited items that originate from discrepant loads. These containers will be managed in regulated storage areas until final disposition.

d. 23. Attachment B, Figure B-1

The revised Figure B-1 is provided in Attachment B

d. 24. Attachment B, Figure B-3

The revised Figure B-3 is provided in Attachment B

d. 25. Attachment B, Figure B-3.1

The new Figure B-3.1 is provided in Attachment B

d. 26. Attachment B, Figure B-5

The revised Figure B-5 is provided in Attachment B

d. 27. Attachment B, Table of Contents

List of Figures

B-3.1 Data Collection Design for Characterization of Retrievably Stored Waste When Waste is Characterized at the WIPP Facility

e. 1. Attachment B1 Introduction

The Permittees will require ~~generator/storage sites (**sites**) to~~the use of the following methods for characterization of TRU mixed waste which is managed, stored, or disposed at WIPP. These methods include requirements for headspace-gas sampling, sampling of homogenous solids and soils/gravel, and radiography. Additionally, this Attachment provides quality control, sample custody, and sample packing and shipping requirements. Unless noted other wise, in this attachment, the term "sites" is to be interpreted to mean the off-site generator/storage site that engages in waste characterization for disposal at WIPP or on-site characterization of waste performed at the WIPP facility.

e. 2. Attachment B1-3b

The Permittees shall require each site to develop a training program that provides radiography operators with both formal and on-the-job (**OJT**) training. Radiography operators shall be instructed in the specific waste generating practices, typical packaging configurations, and associated waste material parameters expected to be found in each Waste Matrix Code at the site. The OJT and apprenticeship shall be conducted by an experienced, qualified radiography operator prior to qualification of the training candidate. The training programs will be site-specific due to differences in equipment, waste configurations, and the level of waste characterization efforts. For example, certain sites use digital radiography equipment, which is more sensitive than real-time radiography equipment. In addition, the particular physical forms and packaging configurations at each site will vary; therefore, radiography operators shall be trained on the types of waste that are generated, stored, and/or characterized at that particular site. For characterization at the WIPP site, training will be sufficiently broad to include waste generated at all of the sites that will send waste to WIPP for characterization.

e. 3. Attachment B1-3b(1)

A radiography test drum shall include items common to the waste streams to be ~~generated/stored~~characterized at the generator/storage site or at the WIPP facility as appropriate. The test drums shall be divided into layers with varying packing densities or different drums may be used to represent different situations that may occur during radiography examination at the site. Test drums representative of the waste matrix codes for which ~~Waste Stream Profile Form~~ approval is sought, must be examined and successfully identified prior to waste stream ~~shipment~~disposal. The following is a list of required elements of a radiography test drum(s):

e. 4. Attachment B1-3b(3)

As an additional QC check, or in lieu of radiography, the waste container contents shall be verified ~~directly~~ by visual examination (VE) that may either be in the form of a direct examination or an audio/video tape made during waste packaging or repackaging ~~of the waste container contents after the completion of the headspace gas sampling~~. Visual examination shall be performed on a statistically determined portion of waste containers to verify the results of radiography. With the exception of items or conditions that could pose a hazard to visual examination personnel, the radiography results shall not be made available until after the visual examination is completed. This verification shall include the Waste Matrix Code and waste material parameter weights. The verification shall be performed through a comparison of

radiography and visual examination results. The Waste Matrix Code is determined and waste material parameter weights are estimated to verify that the container is properly included in the appropriate waste stream. The results of the visual examination shall be transmitted to the radiography facility.

Visual examination or audio/video tape review shall be conducted to describe all contents of a waste container, and includes estimated or measured weights of the contents. The description shall clearly identify all discernible waste items, residual materials, packaging materials, or waste material parameters. Visual examination experts who are experienced and trained shall assess the need to open individual bags or packages of waste. If individual bags/packages are not opened, estimated weights shall be recorded. Estimated weights shall be established through the use of historically derived waste weight tables and an estimation of the waste volumes. It may not be possible to see through inner bags because of discoloration, dust, or because inner containers are sealed. In these instances, documented acceptable knowledge may be used to identify the matrix parameter category and estimated waste material parameter weights. If acceptable knowledge is insufficient for individual bags/packages, actual weights of waste items, residual materials, packaging materials, or waste material parameters shall be recorded. All visual examination activities shall be documented on ~~video/audio~~ audio/video tape and the results of all visual examination or audio/video tape examination shall be documented on visual examination data forms.

e. 5. Attachment B1-3b(3)

Standardized training for visual inspection shall be developed to include both formal classroom training and OJT. Visual inspectors shall be instructed in the specific waste generating processes, typical packaging configurations, and expected waste material parameters expected to be found ~~in each Waste Matrix Code at the site~~during characterization. The OJT and apprenticeship shall be conducted by an operator experienced and qualified in visual examination prior to qualification of the candidate. The training shall ~~be site specific to~~ include the various waste configurations ~~generated/stored at the site~~expected during characterization. For example, the particular physical forms and packaging configurations at each site will vary so operators shall be trained on types of waste that are generated, stored, and/or characterized at that particular site or at the sites that will ship waste to the WIPP facility for characterization. Visual examination personnel shall be requalified once every two years.

e. 6. Attachment B1-4

All samples will be uniquely identified to ensure the integrity of the sample and can be used to identify the generator/storage site and date of collection. For samples taken at the WIPP facility, traceability to the originating generator/storage site will be maintained in the sample documentation. Sample tags or labels will be affixed to all samples and will identify at a minimum:

e. 7. Attachment B1-5

In the event~~ that the analytical facilities are not at the generator/storage site, the~~ samples ~~shall be~~are ~~packaged and~~ shipped to an off-site laboratory~~. Sample~~, sample containers shall be packed to prevent any damage to the sampling container and maintain the preservation temperature, if necessary. Department of Transportation (**DOT**) regulations shall be adhered to for shipment of the package.

f. Attachment B2 Introduction

The Permittees shall require ~~generator/storage sites (**sites**) to~~ the use of the following statistical methods for sampling and analysis of TRU mixed waste which is managed, stored, or disposed at WIPP as appropriate. These statistical methods include methods for selecting waste containers for visual inspection, selecting retrievably stored waste containers for totals analysis, setting the upper confidence limit, and control charting for newly generated waste stream sampling.

g. 1. Attachment B3-1

The Permittees shall require the ~~generator/storage sites (**sites**) to perform~~ validation of all data (qualitative as well as quantitative) so that data used for Waste Isolation Pilot Plant (**WIPP**) compliance programs will be of known and acceptable quality. Validation includes a quantitative determination of precision, accuracy, completeness,, and method detection limits (as appropriate) for analytical data (headspace Volatile Organics Compounds (**VOC**), total VOCs, Semivolatile Organic Compounds (**SVOC**), and metals data). Quantitative data validations shall be performed according to the conventional methods outlined below (equations B3-1 through B3-8). These quantitative determinations will be compared to the Quality Assurance Objectives (**QAOs**) specified in Sections B3-2 through B3-9. A qualitative determination of comparability and representativeness will also be performed.

g. 2. Attachment B3-1

Comparability

Comparability is the degree to which one data set can be compared to another. Comparability of data generated at different sites will be assured through the use of standardized, approved testing, sampling, preservation, and analytical techniques and by meeting the QAOs specified in Sections B3-2 through B3-9.

The comparability of waste characterization data shall be ensured through the use of ~~generator/storage site~~ data usability criteria. The Permittees shall ensure that data usability criteria are consistently established and used ~~by the generator/storage sites~~ to assess the usability of analytical and testing data. The criteria shall address. as appropriate, the following:

- Definition or reference of criteria used to define and assign data qualifier flags based on Quality Assurance Objective results,
- Criteria for assessing the usability of data impacted by matrix interferences,
- Criteria for assessing the usability of data based upon positive and negative bias as indicated by quality control data, of data qualifiers, and qualifier flags,
- Criteria for assessing the usability of data due to
  - Severe matrix effects,
  - Misidentification of compounds,
  - Gross exceedance of holding times,
  - Failure to meet calibration or tune criteria
- Criteria for assessing the usability of data that does not meet minimum detection limit requirements.

The Permittees shall ~~be responsible for evaluating generator/storage site~~ require the evaluation

of data usability and shall assess implementation through the generator/storage site audit.

g. 3. Attachment B3-1

Nonconformance to Data Quality Objectives (DQOs)

For any non-administrative nonconformance related to applicable requirements specified in this Waste Analysis Plan (**WAP**) which are first identified at the site Project Manager signature release level (i.e., a failure to meet a DQO), the Permittees shall receive written notification within five (5) calendar days of identification and shall also receive a nonconformance report within thirty (30) calendar days of identification of the incident. The Permittees shall require the ~~generator/storage site to implement~~ implementation of a corrective action which remedies the nonconformance prior to ~~management, storage, or~~ disposal of the waste at WIPP. The Permittees shall send NMED a monthly summary of nonconformances identified during the previous month, indicating the number of nonconformances received and the ~~generator/storage~~ waste characterization sites responsible.

g. 4. Attachment B3-9

Acceptable knowledge documentation provides primarily qualitative information that cannot be assessed according to specific data quality goals that are used for analytical techniques. QAOs for analytical results are described in terms of precision, accuracy, completeness, comparability, and representativeness. Appropriate analytical and testing results will be used to confirm the characterization of wastes based on acceptable knowledge (Section B4-4 of Permit Attachment B4). To ensure that the acceptable knowledge process is consistently applied, the Permittees shall require ~~sites to comply~~compliance with the following data quality requirements for acceptable knowledge documentation:

g. 5. Attachment B3-9

The Permittees shall require ~~each generator/storage site to comply~~compliance with the nonconformance notification and reporting requirements of Section B3-1 of this Permit Attachment if the results of confirmatory analytical techniques specified in Permit Attachment B are inconsistent with acceptable knowledge documentation.

g. 6. Attachment B3-10a(1)

One hundred percent of the Batch Data Reports must receive an independent technical review. This review shall be performed by an individual other than the data generator who is qualified to have performed the initial work. The independent technical review must be performed as soon as practicably possible in order to determine and correct negative quality trends in the sampling or analytical process. However at a minimum, the independent technical review must be performed before any waste associated with the data reviewed is ~~managed, stored, or~~ disposed at WIPP. The reviewer(s) must release the data as evidenced by signature, and as a consequence ensure the following as applicable:

g. 7. Attachment B3-10a(2)

One hundred percent of the Batch Data Reports must receive technical supervisory signature release for each testing batch, sampling batch, analytical batch and on-line batch. The technical supervisory signature release must occur as soon as practicably possible after the independent

technical review in order to determine and correct negative quality trends in the sampling or analytical process. However at a minimum, the technical supervisory signature release must be performed before any waste associated with the data reviewed is ~~managed, stored, or~~ disposed at WIPP. This release must ensure the following as applicable:

g. 8. Attachment B3-10a(3)

The Permittees shall require for each site that one hundred percent of the Batch Data Reports receive QA officer (or designee) signature release. The QA Officer signature release must occur as soon as practicably possible after the technical supervisory signature release in order to determine and correct negative quality trends in the sampling or analytical process. However at a minimum, the QA Officer signature release must be performed before any waste associated with the data reviewed is ~~managed, stored, or~~ disposed at WIPP. This release must ensure the following as applicable:

g. 9. Attachment B3-10b(1)

One hundred percent of the Batch Data Reports must receive Site Project QA Officer signature release. The Site Project QA Officer signature release must occur as soon as practicably possible in order to determine and correct negative quality trends in the sampling or analytical process. However at a minimum, the Site Project QA Officer signature release must be performed before any waste associated with the data reviewed is ~~managed, stored, or~~ disposed at WIPP. This signature release must ensure the following as applicable:

g. 10. Attachment B3-10b(2)

One hundred percent of the Batch Data Reports must have Site Project Manager signature release. The Site Project Manager signature release must occur as soon as practicably possible after the Site Project QA officer signature release in order to determine and correct negative quality trends in the sampling or analytical process. However at a minimum, the Site Project Manager signature release must be performed before any waste associated with the data reviewed is ~~managed, stored, or~~ disposed at WIPP. This signature release must ensure the following:

g. 11. Attachment B3-11

Reconciling the results of waste testing and analysis with the DQOs provides a way to ensure that data will be of adequate quality to support the regulatory compliance programs. When waste is characterized at sites other than WIPP, r~~R~~econciliation with the DQOs will take place at both the project level and the Permittees' level as described below. When waste is characterized at WIPP, reconciliation with the DQO's will be the responsibility of the Permittees' and will occur prior to disposal. ~~At the project level, reconciliation will be performed by the Site Project Manager; at the Permittees' level, reconciliation will be performed as described below.~~

g. 12. Attachment B3-12

The Permittees will coordinate the data transmission with each ~~generator/storage site~~ off-site location that sends waste to the WIPP facility for disposal or for characterization and disposal. Actual data transmission will use appropriate technology to ensure the integrity of the data transmissions. The Permittees will require sites with large waste inventories and large databases to populate a data structure provided by the Permittees that contains the required data dictionary fields that are appropriate for the waste stream (or waste streams) at that site. For example,

totals analysis data will not be requested from sites that do not have homogeneous solids or soil/gravel waste. The Permittees will access this data via the Internet to ensure an efficient transfer of this data. ~~Small quantity sites will be given a similar data structure by the Permittees that is tailored to their types of waste. Sites with very small quantities of waste will be provided with the ability to assemble the data interactively to this data structure on the WWIS~~Data input for any site that sends waste to WIPP for characterization will be the responsibility of the Permittee

g. 13. Attachment B3-13

Nonconformances

The Permittees shall require the status of work and the WAP activities at participating ~~generator/storage~~ sites to be monitored and controlled by the Site Project Manager and Site Project QA Officer. This monitoring and control shall include nonconformance identification, documentation, and reporting.

g. 14. Attachment B3-13

The Permittees will receive written notification of all non-administrative nonconformances (i.e., a failure to meet a DQO) first identified during the Site Project Manager Review within five (5) days of identification. The Permittees will also receive a nonconformance report within thirty (30) days of identification. The generator/storage site will implement a corrective action process and resolve the identified nonconformance prior to the Permittees ~~management, storage, or~~ disposal of TRU mixed waste at WIPP.

h. 1. Attachment B4-2

The Permittees shall obtain, prior to disposal, from each Department of Energy (**DOE**) TRU mixed waste generator/storage site (**site**) a logical sequence of acceptable knowledge information that progresses from general facility information (TRU Mixed Waste Management Program Information) to more detailed waste-specific information (TRU Mixed Waste Stream Information). Traceability of acceptable knowledge information for a select drum in the audited Waste Summary Category Group(s) will be examined during the Permittees' audit of a site (Section B4-3f). The consistent presentation of acceptable knowledge documentation among sites in auditable records[2] will allow Waste Isolation Pilot Plant (**WIPP**) personnel to verify the completeness and adequacy of acceptable knowledge for TRU mixed waste characterization during the audit process. The ~~Permittees~~ generator/storage site shall implement ~~the~~ an acceptable knowledge process ~~as specified in this Permit~~ to characterize TRU mixed wastes. For generator/storage sites that intend to ship waste to the WIPP facility for characterization, the acceptable knowledge process will be consistent with the requirements of 20.4.1.300 NMAC (incorporating 40 CFR Part 262) or the equivalent regulation in the generator/storage site's state[3]. All generator storage sites must meet the acceptable knowledge documentation requirements of the WAP. If a generator/storage site characterizes waste at their site for disposal at WIPP that generator/storage site is responsible for developing and implementing an AK procedure. If waste is characterized for disposal at the WIPP facility the Permittees will

[2]"Auditable records" mean those records which allow the Permittees to conduct a systematic assessment, analysis, and evaluation of the Permittees compliance with the WAP and this Permit.

[3]To perform this activity, generator/storage sites may use USEPA publication OSWER 9938.4-03 entitled: "Waste Analysis At Facilities That Generate, Treat, Store and Dispose of Hazardous Waste" and/or other relevant guidance.

develop an AK procedure which the generator/storage sites will follow. NMED may independently validate the implementation of and compliance with applicable provisions of the WAP at each generator/storage site by participation in the Permittees' Audit and Surveillance Program (Permit Attachment B6), or at the WIPP, by inspection of the operating record for waste characterized at the WIPP facility. The Permittees shall provide NMED with current audit schedules and notify NMED in writing no later than thirty (30) calendar days prior to each audit. NMED may choose to accompany the Permittees on any audit of the WAP implementation.

The following sections include the information the Permittees will require for each site to characterize TRU mixed waste using acceptable knowledge. Because waste generating processes are site-specific, sites shall, as necessary, supplement the required acceptable knowledge records with additional information (see Section B4-2c, Supplemental Acceptable Knowledge Information). If the required information is not available for a particular waste, relevant supplemental information shall be obtained. ~~and the waste will not be accepted for management, storage, or disposal at the WIPP facility as a retreivably stored waste (i.e., the waste will be characterized as specified in Permit Attachment B, Section B-3d(1)).~~

h. 2. Attachment B4-2a

TRU mixed waste management program information shall clearly define waste categorization schemes and terminology, provide a breakdown of the types and quantities of TRU mixed waste that are generated and stored at the site, and describe how waste is tracked and managed at the site, including historical and current operations. Information related to TRU mixed waste certification procedures and the types of documentation (e.g., waste profile forms) used to summarize acceptable knowledge for disposal shall also be provided. The following information shall be included as part of the acceptable knowledge written record as necessary:

h. 3. Attachment B4-2b

The ~~Permittees~~generator/storage site may use acceptable knowledge to delineate site-specific waste streams for disposal at the WIPP facility. For each TRU mixed waste stream, the Permittees shall require sites to compile ~~all~~ available process information and data ~~that~~ to support the acceptable knowledge used to characterize that waste stream. The type and quantity of supporting documentation will vary by waste stream, depending on the process generating the waste and site-specific requirements imposed by the Permittees. At a minimum, the waste process information shall include the following written information as necessary:

- Area(s) and/or building(s) from which the waste stream was or is generated
- Waste stream volume and time period of generation (e.g., 100 standard waste boxes of retrievable stored waste generated from June 1977 through December 1977)
- Waste generating process described for each building (e.g., batch waste stream generated during decommissioning operations of glove boxes)
- Process flow diagrams (e.g., a diagram illustrating glove boxes from a specific building to a size reduction facility to a container storage area). In the case of research/development, analytical laboratory waste, or other similar processes where process flow diagrams cannot be created, a description of the waste generating processes, rather than a formal process flow diagram, may be included if this modification is justified and the justification is placed in the

auditable record

- Material inputs or other information that identifies the chemical content of the waste stream and the physical waste form (e.g., glove box materials and chemicals handled during glove box operations, if applicable)

The acceptable knowledge written record shall include a summary that identifies all sources of waste characterization information used to delineate the waste stream. The basis and rationale for delineating each waste stream, based on the parameters of interest, shall be clearly summarized and traceable to referenced documents.

Assumptions made in delineating each waste stream also shall be identified and justified. If discrepancies with regards to the hazardous waste content of a waste stream exist within ~~between required~~ necessary information, then sites shall apply ~~all~~ appropriate hazardous waste codes indicated by the information to the subject waste stream unless the sites choose to justify an alternative assignment and document the justification in the auditable record. The Permittees shall assure that ~~obtain from each site~~, ~~at a minimum~~, procedures for ~~that comply with the following~~ acceptable knowledge address the following: ~~requirements~~

- ~~Procedures for identifying and assigning~~ Identification and assignment of the physical waste form of the waste

- ~~Procedures for delineating~~ Delineation of waste streams and ~~assigning~~ assignment of Waste Matrix Codes

- ~~Procedures for resolving~~ Resolution of inconsistencies in acceptable knowledge documentation

- ~~Procedures for confirming~~ Confirmation of acceptable knowledge information through headspace gas sampling and analysis, visual examination and/or radiography, ~~and~~ or homogeneous waste sampling and analysis as appropriate

- ~~Procedures describing~~ Description of management controls used to ensure prohibited items (specified in the WAP, Permit Attachment B) are documented and managed

- ~~Procedures to ensure~~ Assurance that radiography and visual examination procedures include a list of prohibited items that the operator shall verify are not present in each container of waste (e.g., liquids exceeding TSDF-WAC limits, corrosives, ignitables, reactives, and incompatible wastes)

- ~~Procedures to document~~ Documentation of how changes to Waste Matrix Codes, waste stream assignment, and associated EPA hazardous waste numbers based on material composition are documented for any waste

- ~~Procedures~~ Description of how, for newly generated waste, ~~shall describe how~~ acceptable knowledge is confirmed using visual examination.

h. 4. Attachment B4-2c

~~The generator/storage sites shall obtain supplemental acceptable knowledge information . The amount and type of~~ Ssupplemental AK information is site-specific, ~~and~~ cannot be mandated, and

~~but sites~~ shall only be collected ~~collect information as appropriate~~ as necessary, to support required information. Adequacy of supplemental information shall be assessed by the Permittees during audits (Section B4-3f). Sites will use this information to compile the acceptable knowledge written record. Supplemental acceptable knowledge documentation that may be used (if available) in addition to the ~~required~~ information specified above may include, but ~~are~~is not limited to, the following information:

h. 5. Attachment B4-3

The Permittees shall require consistency among sites in using acceptable knowledge information to characterize TRU mixed waste for disposal by the use of the following three phase process: 1) compiling the ~~required and supplemental~~ acceptable knowledge documentation ~~in~~ into an auditable record, 2) confirming and updating acceptable knowledge information using radiography and/or visual examination, headspace-gas sampling and analysis, ~~and~~ or homogeneous waste sampling and analysis as appropriate, and 3) auditing acceptable knowledge records. This section specifies qualification and training requirements, describes each phase of the process, specifies the procedures that the Permittees shall require all sites to develop to implement the requirements for using acceptable knowledge, and specifies data quality requirements for acceptable knowledge.

h. 6. Attachment B4-3b

The Permittees shall ~~obtain from~~ require generator/storage facilities ~~sites~~ to have acceptable knowledge procedures which ~~require~~ result in consistent application of the acceptable knowledge process and requirements. If a generator/storage site characterizes waste at their site for disposal at WIPP that generator/storage site is responsible for developing and implementing an AK procedure. If waste is characterized for disposal at the WIPP facility the Permittees will develop an AK procedure which will be followed at the generator/storage site. ~~Site-specific a~~Acceptable knowledge procedures shall address the following:

h. 7. Attachment B4-3c

Figure B4-1 provides an overview of the process for assembling acceptable knowledge documentation into an auditable record. The first step is to assemble all of the required acceptable knowledge information and any supplemental information regarding the materials and processes that generate a specific waste stream. The Permittees shall require the off-site generator/storage facilities ~~sites~~ to implement procedures (either their procedures or procedures developed by the Permittees) which comply with the following criteria to establish acceptable knowledge records:

h. 8. Attachment B4-3d

Acceptable knowledge includes information regarding the physical form of the waste, the base materials composing the waste, and the process that generates the waste. Waste characterization (i.e., radiography or visual examination, headspace-gas sampling and analysis, ~~and~~or homogeneous waste sampling and analysis as appropriate) will be used to confirm acceptable knowledge information prior to disposal. Figure B4-2 illustrates the process the Permittees shall ~~require sites to use~~ implement to confirm acceptable knowledge.

h. 9. Attachment B4-3e

The data quality objectives for sampling and analysis techniques are provided in Permit

Attachment B3. Analytical results will be used to confirm the characterization of wastes based on acceptable knowledge. To ensure that the acceptable knowledge process is consistently applied, the Permittees shall require off-site generator/storage facilities ~~sites~~ to comply with the following data quality requirements for acceptable knowledge documentation:

h. 10. Attachment B4-4

The Permittees shall require confirmation of acceptable knowledge characterization designations prior to disposal ~~at the site~~, as stated in Section B4-3(b). In addition ~~and prior to notifying a site that a waste stream can be managed, stored, or disposed at the WIPP facility,~~ the Permittees will review the Waste Stream Profile Forms, the WIPP Waste Information System (**WWIS**), and associated Characterization Information Summary to ensure that radiography or visual examination, headspace-gas sampling and analysis data, ~~and~~ or homogeneous waste sampling and analysis data confirm hazardous waste characterization made using acceptable knowledge. The Permittees shall ~~require all sites to~~ be provided with data ~~all of the required data associated with waste stream characterization, including summary acceptable knowledge information, radiography or visual examination, headspace gas sampling and analysis, and homogeneous waste sampling and analysis results~~ to confirm AK.

h. 11. Attachment B4, Figure B4-1

The revised Figure B4-1 is in Attachment B

h. 12. Attachment B4, Figure B4-2

The revised Figure B4-2 is in Attachment B

h. 13. Attachment B4, Figure B4-3

The revised Figure B4-3 is in Attachment B

I. 1. Attachment B5-1

~~Prior to management, storage, or disposal of a generator/storage site's TRU mixed waste at WIPP,~~ T~~t~~he Permittees shall require that each participating site, which performs characterization for disposal at WIPP, develop~~s~~ and implement~~s~~ a quality assurance project plan (**QAPjP**) that addresses all the applicable requirements specified in Waste Isolation Pilot Plant waste analysis plan (**WAP**) in Permit Attachment B. This QAPjP will be in place prior to the initiation of the waste characterization activities required by the WAP. The Permittees will approve QAPjPs from all generator/storage sites that intend to send characterized TRU mixed waste to the Waste Isolation Pilot Plant. For waste that will be characterized at WIPP, the Permittees shall develop a QAPjP that meets all applicable requirements of the WAP; this QAPjP will be implemented at the WIPP for those wastes characterized at the WIPP. The Permittees shall ensure that these QAPjPs include the qualitative or quantitative criteria for determining whether waste characterization program activities are being satisfactorily performed. The Permittees shall also ensure that QAPjPs identify the organization(s) and position(s) responsible for their implementation. Additionally, the QAPjPs shall also reference site-specific documentation that details how each of the required elements of the characterization program will be performed.

I. 2. Attachment B5-2

At a minimum, the Permittees shall ensure that revisions to ~~generator/storage site implementing~~ documents that implement the requirements of the WIPP waste analysis plan are denoted by including the current revision number on the document title page, the revised signature page, and each page that has been revised. Only revised pages need to be reissued. ~~A vertical bar, indicating the change to the text, shall be included along the left-hand margin of the page, except for full document revisions. Revised document submittals shall also identify the changes, the reason for the changes, and the justification for concluding that the revised contents continue to satisfy the requirements of the quality assurance program. QAPjP and other generator/storage site implementing document revisions must undergo the same level of review and approval as the baseline version of each document.~~ Changes to documents, other than those defined as editorial changes or minor changes, shall be reviewed and approved by the same functional organizations that performed the original review and approval, unless other organizations are specifically designated in accordance with approved procedures. Editorial or minor changes may be made without the same level of review and approval as the original or otherwise changed document. The following items are considered editorial or minor changes:

- Correcting grammar or spelling (the meaning has not changed)
- Renumbering sections or attachments
- Updating organizational titles
- Changes to nonquality affecting schedules
- Revised or reformatted forms, providing the original intent of the form has not been altered
- Attachments marked “Example,” “Sample,” or exhibits that are clearly intended to be representative only

A change in an organizational title accompanied by a change in responsibilities is not considered an editorial change. Changes to the text shall be clearly indicated in the document.

j. 1. Attachment B6 Table B6-1

Are procedures in place to ensure that the ~~generator/storage site assigns~~waste stream is assigned to one of the Summary Category Groups (S3000-homogeneous solids, S4000-soils/gravel, S5000-debris waste) to each waste stream? (Section B-1b)
Are procedures in place to ensure that the generator/storage site or the Permittees for waste characterized at the WIPP facility, divides waste streams into waste stream lots if all of the waste within a waste stream is not available for sampling and analysis at one time? If so, is the division of waste streams into waste stream lots based on staging, transportation and handling issues? (Section B-1a)
~~Does the generator/storage facility have~~Are procedures in place to ensure that the following waste analysis parameters will be characterized: C Confirmation of physical form and exclusion of prohibited items C Toxicity characteristic contaminants listed in 20 NMAC 4.1.200 C F-listed and P-listed solvents or wastes (F001, F002, F003, F004, F005, F006, F007, F009, P015) found in 20 NMAC 4.1.200 C Hazardous constituents as included in 20 NMAC 4.1.200 (Section B-2)
Are procedures in place to ensure that ~~the generator/storage site uses~~ acceptable knowledge, headspace-gas sampling and analysis, radiography (and/or visual examination), and homogeneous waste sampling and analysis are used to characterize waste as specified in Table B-6? (Section B-3)

Are procedures in place to ensure that ~~the generator/storage site ensures, through administrative and operational procedures and characterization techniques~~, that waste containers do not include the following unacceptable waste:

- C liquid waste (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container. Total residual liquid in any payload container may not exceed 1 percent volume of that container)
- C non-radionuclide pyrophoric materials
- C hazardous wastes not occurring as co-contaminants with TRU wastes (non-mixed hazardous wastes)
- C wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes
- C wastes containing explosives or compressed gases
- C wastes with polychlorinated biphenyl (PCB) concentrations equal to or greater than 50 parts per million
- C wastes exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)
- C RH TRU mixed waste (waste with a surface dose rate of 200 millirem per hour or greater)
- C any waste container which has not undergone headspace gas sampling and analysis to determine concentration of VOCs
- C any waste container which has not undergone either radiographic or visual examination
- C any waste container from a waste stream which has not been preceded by an appropriate, certified Waste Stream Profile Form (see Section B-1d)

(Section B-1c)

Are procedures in place to ensure that ~~the generator/storage site uses~~ radiography, visual examination, headspace gas analysis and, as applicable, solids sampling, are used as appropriate to confirm the absence of the unacceptable waste listed above? (Section B-3)

Are procedures in place to ensure ~~that the generator/storage site uses~~ of a Waste Stream Profile Form (WSPF) which includes, at a minimum, the information indicated on the attached WSPF found in Figure B-1? A Waste Stream Profile Form need not be submitted for subsequent waste stream lots unless warranted by the characterization information. (Sections B-1a, B-1d)

Are procedures in place to ensure that ~~the generator/storage site conduct~~ analyses are conducted using laboratories that are qualified through participation in the Performance Demonstration Program (PDP) for headspace gas sampling and analysis, and PDP homogeneous waste sampling and analysis? (Section B-3a(3))

Are procedures in place to ensure that ~~the generator/storage site conduct~~ analyses are conducted using laboratories that implement the analytical methods through laboratory-documented standard operating procedures (SOPs) that ensure that analytical QAOs are met? (Section B-3a(3))

With respect to data generation, are procedures in place to ensure that ~~the generator/storage site's~~ waste characterization program~~s~~ meet~~s~~ the following general requirements: C Analytical data packages and batch data reports must be reported accurately in a pre-approved format, must be maintained in permanent files, and must be traceable? C All data must receive a technical review by another qualified analysts or the technical supervisor, and the laboratory QA officer? C All raw data must be reviewed and have the release signatures of a technical supervisor and a QA officer before release? (Section B-4(a)(4), B-3) (Section B3-10)
Are procedures in place to ensure that ~~the generator/storage site performs~~ data validation and verification of waste characterization data for is performed for each waste container? (Section B-4)
Are procedures in place to ensure that ~~the generator/storage site has a pre-~~an approved format for reporting waste characterization data is used? (Section B-4a(4))
Are procedures in place to ensure that ~~the generator/storage site transmits~~ data are transmitted by hard copy or electronic copy from the data generation level to the site project level after all data generation and project level validations are complete? If electronic, ~~does the generator/site have~~ is a hard copy available on demand? (Section B-4a(6))
Are procedures in place to ensure that ~~the generator/storage site inputs the~~ data are into the WWIS manually or electronically? (Section B-4a(6))
Are procedures in place to ensure that ~~the generator/storage site enters the~~ data are entered into the WWIS in the exact format required by the database? (Section B-4a(6))
Are procedures in place to ensure that ~~the generator/storage site reports summarize~~ waste characterization information is summarized on a waste stream basis, and for waste characterized off-site, transmit~~s~~ed to the ~~summarized data by hard copy or electronically to WIPP Waste Operations~~Permittees when requested? (Section B-4a(6))
Are procedures in place to ensure that ~~the generator/storage site's~~ Batch Data Reports are reviewed at the project level and include the following information: C Site name? C Program identification? C Waste container numbers? C Release signatures from the Site Project Manager and the Site Project QA Officer? and C A concise narrative summarizing the results of the site project level review? (Section B3-10) (Section B3-12)
Are procedures in place to ensure that ~~the generator/storage site uses~~ forms used for data reporting that are pre-approved forms in site-specific documentation? (Section B3-12)
Are procedures in place to ensure that, for waste characterized off-site, the generator/storage site's site project manager submits to the WIPP facility a summary of the waste stream information and reconciliation with data quality objectives (DQOs) once a waste stream is fully characterized? (Section B-4a(6))
Are procedures in place to ensure that the generator/storage Site Project Manager completes ~~a~~ the applicable portions of the WSPF based on the Batch Data Reports ? (Section B-4a(6)) (Section B3-12b(1))
Are procedures in place to ensure that the generator/storage Site Project Manager submits the applicable portions of the WSPF to the Permittees for approval along with ~~the~~ any required accompanying Characterization Information Summary for that waste stream? (Section B-4a(6)) (Section B3-12b(1))

Are procedures in place to ensure that the ~~generator/storage~~ waste characterization site maintains records related to waste characterization sampling and analysis activities in the testing, sampling or analytical facilities files, or site project files for those facilities located on-site? (Section B-4a(7))
Are procedures in place to ensure that the ~~generator/storage~~ waste characterization site requires contract waste analytical facilities to forward testing, sampling and analytical QA documentation along with testing, sampling and analytical batch data reports to the site project office for inclusion in the site central files? (Section B-4a(7))
Are procedures in place to ensure that the ~~generator/storage~~ waste characterization site has an appropriate records inventory and disposition schedule (RIDS) or equivalent that was prepared and approved by appropriate site personnel? (Section B-4a(7))
Are procedures in place to ensure that the ~~generator/storage~~ waste characterization site maintains all records relevant to an enforcement action, regardless of disposition, until they are no longer needed for enforcement action, and then dispositioned per the approved RIDS? (Section B-4a(7))
Are procedures in place to ensure that the ~~generator/storage~~ waste characterization e site has raw data that is identifiable and legible, and provides documentary evidence of quality? (Section B-4a(7))

j. 2. Attachment B6, Table B6-3

Has the generator developed a methodology, or is a methodology developed by the Permittees being used, whereby a logical sequence of acceptable knowledge information that progresses from general facility to more detailed waste-specific information can be acquired? (Section B4-2)
Does the generator site, or the Permittees in the case where the assembling of acceptable knowledge is done by the Permittees, have procedures to ensure that all personnel involved with acceptable knowledge waste characterization have the following training, and is this training documented? C WIPP WAP and TSDF Waste Acceptance Criteria Requirements C State and Federal RCRA regulations associated with solid and hazardous waste characterization C Discrepancy resolution and reporting C Site-specific procedures associated with waste characterization using acceptable knowledge (Section B4-3a)

Has the generator site, or the Permittees, developed the following procedures, and are these procedures technically sufficient?

- ~~Sites must prepare and implement a~~A written procedure outlining the specific methodology used to assemble acceptable knowledge records, including the origin of the documentation, how it will be used, and any limitations associated with the information (e.g., identify the purpose and scope of a study that included limited sampling and analysis data).
- ~~Sites must prepare and implement a~~A written procedure to compile the required acceptable knowledge record.
- ~~Sites must prepare and implement a~~A written procedure that describes the waste certification program and ensures unacceptable wastes (e.g., reactive, ignitable, corrosive) are identified and segregated from certifiable TRU waste populations.
- ~~Sites must prepare and implement a~~A written procedure to evaluate acceptable knowledge and resolve discrepancies. If different sources of information indicate different hazardous wastes are present, then sites must include all sources of information in its records and conservatively assign all potential hazardous waste codes, unless the site chooses to justify an alternative assignment and document the justification in the auditable record.

- ~~Sites must prepare and implement a~~A written procedure in compliance with Section B4-3(d) to identify hazardous wastes and assign the appropriate hazardous waste codes to each waste stream. The following are minimum baseline requirements/standards that site-specific procedures must include to ensure comparable and consistent identification of hazardous waste:
  - Compile all of the required information in an auditable record.
  - Review the required information to determine if the waste is listed under 40 CFR Part 261, Subpart D. Assign all listed hazardous waste codes, unless the site chooses to justify an alternative assignment and document the justification in the auditable record.
  - Review the required information to determine if the waste may contain hazardous constituents included in the toxicity characteristics specified in 40 CFR Part 261, Subpart C. If a toxicity characteristic contaminant is identified and is not included as a listed waste, assign the toxicity characteristic code, unless data are available which demonstrates that the concentration of the constituent in the waste is less than the toxicity characteristic regulatory level. When data are not available, the toxicity characteristic hazardous waste code for the identified hazardous constituent must be applied to the mixed waste stream.
  - For newly generated waste, procedures shall be developed and implemented to characterize mixed waste using acceptable knowledge prior to packaging.

C ~~Sites must prepare and implement a~~A written procedure for the confirmation of acceptable knowledge in accordance with Section B4-3(d). C ~~Sites must prepare and implement a~~A written procedure that provides a cross reference to the applicable waste summary category group (i.e., S3000, S4000, and S5000) to verify all of the required confirmation data has been evaluated and the proper hazardous waste codes have been assigned. C Sites shall ensure that results of other audits of the TRU mixed waste characterization programs at the site are available in the records. A reference list must be provided that identifies documents, databases, Quality Assurance protocols, and other sources of information that support the acceptable knowledge information. (Section B4-3b)
Does the generator site, or the Permittees, have written procedures for the confirmation of all acceptable knowledge information using analytical data, including headspace gas data, sampling and analysis, and non destructive assay, non-destructive examination, and/or visual examination? Are these procedures developed for both retrievably stored and newly generated waste? (Section B4-3d)
Does the generator site, or the Permittees, have procedures for reevaluating acceptable knowledge if radiography or visual examination identify it to be a different waste matrix codes? Does this procedure describe how the waste is reassigned, acceptable knowledge reevaluation, and appropriate hazardous waste codes are reassigned? (Section B4-3d)
Does the generator site, or the Permittees, documents state that both sampling and analysis (S3000 and S4000 waste stream) and headspace gas (for all waste streams) data be used to confirm acceptable knowledge hazardous waste designations? (Section B4-3d)
Do site, or the Permittees, documents state that radiography (or VE, if waste is newly generated) is used to confirm waste matrix code and waste streams assigned to retrievably stored waste via AK? (Section B4-3d)
Does the generator site, or the Permittees, document, justify, and consistently delineate waste streams and assign hazardous waste codes based on site specific permit requirements or state-enforced agreements? (Section B4-4)
Does the generator site, or the Permittees, have written methodologies for determining the mean concentration of solvent VOCs detected by either headspace gas analysis or homogeneous waste sampling for each waste stream or waste stream lot, and are all data ("U" flags designated as one half the MDL and "J" flags, which are less than the PRQL but greater than the MDL)? (Section B4-3d)
Are acceptable knowledge processes consistently applied among all ~~generator~~ sites, and does each ~~generator~~ site comply with the following data quality requirements for acceptable knowledge documentation:
Does the ~~generator~~ site address quality control by tracking its performance with regard to the use of acceptable knowledge by: 1) assessing the frequency of inconsistencies among information, and 2) documenting the results of acceptable knowledge confirmation through radiography or visual examination, headspace-gas analyses, and homogeneous waste analyses. In addition, the acceptable knowledge process and waste stream documentation must be evaluated through internal assessments by quality assurance organizations and assessments by auditors or observers external to the organization (i.e., Permittees, NMED, EPA). (Section B4-3e)

k. Attachment D-1b(1)

Container inspections will be included as part of the surface TRU mixed waste handling areas (i.e. Parking Area Unit and WHB Unit) inspections described in Table D-1. These inspections will ~~also~~ include the Derived Waste Storage Area of the WHB Unit, the Shielded Storage Area, the Northwest Storage Area (Room 108), the WC Storage Area and Room 112. The total capacity of these areas is 3795 cubic feet (107.4 cubic meters). The distribution of that total capacity is at the discretion of the Permittees so long as the individual area capacities listed below are not exceeded. The Derived Waste Storage Area will ~~consist of containers of 55 or 85-gallon drums or SWBs~~, have a~~. The~~ maximum total storage volume of ~~this area is up to~~ 66.3 cubic feet (1.88 cubic meters). Room 108 will have a maximum capacity of 1,047 cubic feet (29.6 cubic meters). Room 112 will have a maximum capacity of 30 cubic feet (0.85 cubic meters). The Shielded Storage Area will have a maximum capacity of 265 cubic feet or 7.5 cubic meters. The WC Storage area will have a maximum capacity of 30 cubic feet (0.85 cubic meters). ~~A Satellite Accumulation Area (**SAA**) may be required in an area adjacent to the TRUDOCKs. This~~ The Satellite Accumulation Areas (SAAs) will be set up on an as needed basis at or near the point of generation and the derived waste will be discarded into the active derived waste container. All SAAs will be inspected in accordance with 20.4.1.300 NMAC~~ 4.1.300~~ (incorporating 40 CFR §262.34).

l. 1. Attachment D1, Table of Contents

INSPECTION SHEETS, LOGS, AND INSTRUCTION SHEETS FOR SYSTEMS/EQUIPMENT REQUIRING INSPECTION TABLE OF CONTENTS

- Underground R.T.

Room 112
Salt-Handling Shaft
Self Rescuers
Shielded Storage Area
Surface TRU Mixed Waste Handling Area
TDOP Upender
TRU Mixed Waste Decontamination Equipment
Underground Openings, Roofbolts, Travelways
Underground Geomechanical Instrumentation System (GIS)
Underground TRU Mixed Waste Disposal Area
Uninterruptible Power Supply (Central UPS)
Vehicle Siren
Ventilation Exhaust
Waste Handling Cranes
Waste Shaft Hoist
Water Tank Level
WC Storage Area
Push-Pull Attachment
Trailer Jockey

l. 2. Attachment D1, Derived Waste Storage Area

The new inspection sheet is included in Attachment B

l. 3. Attachment D1, Northwest Storage Area (Room 108)

The new inspection sheet is included in Attachment B

l. 4. Attachment D1, Shielded Storage Area

The new inspection sheet is included in Attachment B

l. 5. Attachment D1, Room 112

The new inspection sheet is included in Attachment B

l. 6. Attachment D1, WC Storage Area

The new inspection sheet is included in Attachment B

m. 1. Attachment E-1b

At all times, written procedures ensure that loaded TRUPACT-II containers, ~~facility~~ pallets, 7-packs, 3-packs, 4-packs, SWBs, 55 gallon drums, 85-gallon drums, 100-gallon drums, TDOPs, or canisters are managed in the WHB Unit in a manner to prevent obstructing the movement of personnel, fire-protection equipment, spill-control equipment, and decontamination equipment. An aisle space of 44 in. (1.1 m) between loaded ~~facility~~ pallets will be maintained in all waste storage areas of the WHB Unit, and a minimum of 4 ft of isle space will be maintained between TRUPACT-IIs in the outdoor Parking Area Unit.

m. 2. Attachment E-2a

Non-characterized TRU mixed waste are transferred by forklift to Room 108. Individual containers are placed upon containment pallets for movement through the waste characterization process using appropriate material handling equipment. Once through the

waste characterization process these containers are stored in a permitted storage area until a sufficient quantity is available to reconfigure them for disposal. Once reconfigured, the characterized waste is managed in the same manner as other characterized waste.

~~Palletized~~ TRU mixed waste that has been characterized for disposal and placed on a facility pallet is transferred by a ~~13-ton (11.8-metric ton)~~ forklift to the conveyance loading car (see Figure M2-6 in Permit Attachment M2), which is designed with an adjustable bed height that is used to transfer the facility pallets to the special pallet-support stands in the waste hoist cage.

n. 1. ATTACHMENT F, Table of Contents

RCRA CONTINGENCY PLAN
TABLE OF CONTENTS

n. 2. Attachment F-1

Transuranic Package Transporter-II (**TRUPACT-II**) Maintenance Facility (Also referred to as Building 412) - located west of the WHB~~CH bay~~, ~~houses waste handling personnel. This facility~~ is ~~also~~ used for training, ~~and~~ minor maintenance, ~~such as TRUPACT-II O-ring replacement~~ and waste characterization activities. ~~No TRU mixed waste management activities will occur in this facility.~~

n. 3. Attachment F-1

This ~~chapter of~~ attachment to the permit ~~application~~ describes the HWDUs, the TRU mixed waste management facilities and operations, compliance with the environmental performance standards, and with the applicable technical requirements of 20.4.1.500 NMAC~~4.1.500~~ (incorporating 40 CFR §264.170 to §264.178 and §264.601, respectively). The configuration of the WIPP facility consists of completed structures; including all buildings and systems for the operation of the facility.

Disposal Phase Overview

The Disposal Phase will consist of receiving and unloading CH TRU mixed waste shipping containers, characterizing waste as required, ~~unloading and~~ placing waste on facility pallets, transporting the waste containers to the underground HWDUs, emplacing the waste in the underground HWDUs, and subsequently achieving closure of the underground HWDUs in

compliance with applicable State and Federal regulations.

n. 4. Attachment F-1

Containers

TRU mixed waste containers, containing off-site waste, will not be not opened at the WIPP facility except for those waste requiring waste characterization.

WIPP generated waste (Derived waste) containers are kept closed at all times unless waste is being added or removed.

n. 5. Attachment F-1

Description of Surface Hazardous Waste Management Units

The WHB Unit and Building 412 are ~~is~~ the surface ~~facility~~facilities where waste handling activities will take place. The WHB Unit has a total area of approximately 84,000 square feet (ft^2) (7,803 square meters [m^2]) of which ~~33,175~~44,425 ft^2 (~~3,083~~ 4131.6 m^2) are designated for the waste handling and container storage of CH TRU mixed waste. This area is being permitted as a container storage unit. The concrete floors are sealed with an impermeable coating that has excellent resistance to the chemicals in TRU mixed waste and, consequently, provide secondary containment for TRU mixed waste. In situations where waste may be managed in areas with uncoated flooring, containment pallets or, when containers are in the process of waste characterization, containment berms will be used to provide secondary containment. In addition, a Parking Area Unit south of the WHB will be used for storage of waste in sealed shipping containers awaiting unloading. This area is also being permitted as a container storage unit. The sealed shipping containers provide secondary containment in this hazardous waste management unit (**HWMU**).

~~CH Bay~~WHB Operations

The typical processing rate for CH TRU mixed waste that is not to be characterized at the WIPP facility is 14 TRUPACT-IIs per day, and the maximum is 28 per day. ~~Two shifts per day are planned; four days per week. The fifth day is for equipment maintenance with weekends available for more extensive maintenance, when necessary.~~

Once unloaded from the TRUPACT-IIs, CH TRU mixed waste containers which have been fully characterized prior to shipment (3- packs, 7-packs, SWBs, or TDOPs) are placed in one of two positions on the facility pallet. The 3-packs, 7-packs or SWBs are stacked, as they arrive in the TRUPACT-II, on the facility pallets (~~one- or~~ maximum of two-high, ~~depending on weight considerations~~). The use of facility pallets will elevate the waste ~~approximately 9.5 inches (in.) (24 centimeters [cm])~~ sufficiently from the floor surface. Pallets of waste will then be relocated to ~~the northeast~~ a permitted storage area of the ~~CH bay~~ WHB for normal storage. This storage area will be clearly marked to indicate the lateral limits of the storage area. This storage area will have a maximum capacity of 3795 cubic feet (107.4 cubic meters) ~~seven facility pallets of waste during normal operations~~. These pallets will typically be staged in this area for a period of up to five days.

In addition, four TRUPACT-IIs, containing up to eight 3-packs or 7-packs or SWBs or four TDOPs, may occupy the staging positions at the TRUPACT-II Unloading Docks (**TRUDOCK**).

Waste to be characterized at WIPP will be unloaded at one of the TRUDOCKs and will be moved to Room 108 within the WHB for temporary storage prior to characterization. These waste containers will be placed on containment pallets and stored as previously described.

Aisle space shall be maintained in all ~~CH Bay~~ WHB waste storage areas. The aisle space shall be adequate to allow unobstructed movement of fire response personnel, spill-control equipment, and decontamination equipment that would be used in the event of an off-normal event. An aisle space between facility pallets will be maintained in all CH TRU mixed waste storage areas.

n. 6. Attachment F-1

Secondary containment at most permitted storage areas inside the WHB Unit shall be provided by the floor. All waste containers for characterization will be stored on containment pallets or in bermed areas that provide secondary containment where the floor is not adequate. The Parking Area Unit and TRUDOCK storage area of the WHB Unit do not require engineered secondary containment, since waste is not stored there unless it is protected by the TRUPACT-II shipping containers. Floor drains, the fire suppression water collection sump, and portable dikes, if needed, will provide containment for liquids that may be generated by fire fighting. Sump capacities and locations are shown in Drawing 41-F-087-014. Residual fire fighting liquids will be placed in containers and managed as described above.

o. 1. Attachment G, Table of Contents

TRAFFIC PATTERNS
TABLE OF CONTENTS

o. 2. Attachment G-1

~~Waste Handling Building~~ CH Bay Traffic

CH TRU mixed waste will arrive by tractor-trailer at the WIPP facility in sealed shipping containers (e.g., TRUPACT-IIs). Upon receipt, security checks, radiological surveys, and shipping documentation reviews will be performed. A forklift will remove the TRUPACT-IIs and transport them a short distance through an air lock that is designed to maintain differential pressure in the WHB. The forklift will place the shipping containers at one of the two TRUPACT-II unloading docks (**TRUDOCK**) inside the WHB.

The TRUPACT-II may hold up to two three-packs, seven-packs, or standard waste boxes (**SWB**), or one ten-drum overpack (**TDOP**). A six-ton overhead bridge crane will be used to remove the contents of the TRUPACT-II. Waste containers will be surveyed for radioactive contamination and decontaminated or returned to the TRUPACT-II as necessary.

Each facility pallet will accommodate four seven-packs, four three-packs of 100-gallon drums, four SWBs, 4-four-packs of 85-gallon drums, two TDOPs, or any combination thereof. Waste

containers will be secured to the facility pallet prior to transfer. A forklift will transport the loaded facility pallet of waste characterized for disposal to the conveyance loading car inside the air lock at the Waste Shaft (Figure G-3). The conveyance loading car will be driven onto the waste hoist deck, where the loaded facility pallet will be transferred to the waste hoist, and the loading car will be backed out.

Seven packs of non-characterized TRU mixed waste are transferred by forklift to Room 108. Individual drums are removed from these 7-packs and placed upon containment pallets for movement through the waste characterization process using appropriate material handling equipment. Once through the waste characterization process these containers are stored in a permitted storage area until a sufficient quantity is available to reconfigure them into a 7-pack. Once reconfigured into a 7-pack the characterized waste is managed in the same manner as other characterized waste.

o. 3. Attachment G, Figure G-3

The revised Figure is included in Attachment B

o. 4. Attachment G, Figure G-4

The revised Figure is included in Attachment B

o. 5. Attachment G, Figure G-5

The revised Figure is included in Attachment B

o. 6. Attachment G, Table of Contents

List of Figures

p. Attachment H1**,** RCRA Hazardous Waste Management Job Descriptions, TRU Waste Handlers

RCRA Hazardous Waste Management Job Descriptions

Position Title: TRU Waste Handlers

Duties:

- Operates waste handling equipment and support systems to unload, handle and emplace TRU mixed waste and backfill into the repository
- Performs functional and operational checks of waste handling equipment and support systems as well as conduct waste container storage area inspections
- Performs spot decontamination of shipping casks, waste containers, and waste handling equipment
- Perform waste container overpacking operations

- Perform activities in support of on-site waste characterization

g. Attachment H2, Qualification Card, CH Waste Handling Technician (WH-01A, WH-01B, WH-01C), CH Waste Handling Engineer (WH-02)

QUALIFICATION CARD: CH Waste Handling Technician (WH-01A, WH-01B, WH-01C)
CH Waste Handling Engineer (WH-02)

DURATION: Nine to twelve months

CLASSROOM TRAINING: Various classroom courses are utilized to provide operators the requisite training as part of the qualification process. The candidate must satisfactorily complete the classroom training courses prior to completion of the qualification card.

SCOPE: The CH Waste Handling Technician Qualification Card (WH-01A Backfill Technician, WH-01B Floor, Yard, and Emplacement Technician, and WH-01C Waste Handling Technician) and CH Waste Handling Engineer Qualification Card (WH-02 Waste Handling Operations Qualification Card Guide Book [WH-GUIDE-1]).

REFERENCES: CH Waste Handling Technician Qualification Card (WH-01)
CH Waste Handling Engineer Qualification Card (WH-02)
Waste Handling Operations Qualification Card Guide Book (WH-GUIDE-1)

QUALIFICATION CARD DESCRIPTION (by category)

1. Equipment Knowledge Requirements

Demonstrate knowledge of the following for the various pieces of CH waste handling equipment and systems:

- **!** General principle of equipment operation
- **!** Understanding of alarms, indications, and readings
- **!** Proper response to abnormal equipment conditions
- **!** Precautions, administrative requirements, and technical specification requirements
- **!** Basic safety requirements for equipment operation

2. Equipment Operation Practical Requirements

Demonstrate competency in conducting CH waste handling equipment and system functional and operational inspections.

Demonstrate competency in standard operation of CH waste handling equipment and systems.

3. Integrated Process Knowledge Requirements

Demonstrate knowledge of the following for the various integrated support functions.

- **!** Administrative activities for equipment/system isolation, modification and control
- **!** Management of site derived waste
- **!** Proper response to abnormal facility conditions
- **!** Container storage area inspections
- **!** Facility support systems
- **!** Knowledge of on-site waste characterization support process

r. Attachment I3-3c

~~The WIPP facility will handle only sealed containers of waste and derived waste. The practice of handling sealed containers minimizes the opportunity for releases or spills.~~ For the purposes of safety analysis (DOE 1997), it was assumed that releases and spills during operations occur by either of two mechanisms: 1) surface contamination and 2) accidents.

s. 1. Attachment M1-1c(1)

The Waste Handling Building (**WHB**) is the surface facility where TRU mixed waste handling activities will take place (Figure M1-1). The WHB has a total area of approximately 84,000 square feet (ft^2) (7,804 square meters (m^2)) of which ~~33,175~~44,425 ft^2 (~~3,082~~4,131.6 m^2) are designated for the waste handling and container storage of CH TRU mixed waste, as shown in Figure M1-1. This area is being permitted as the WHB Unit. The concrete floors are sealed with a coating that is sufficiently impervious to the chemicals in TRU mixed waste to meet the requirements of 20.4.1.500 NMAC ~~4.1.500~~ (incorporating 40 CFR §264.175(b)(1)). In situations where waste may be managed in areas with uncoated flooring, containment pallets or, when waste is in the characterization process, containment berms will be used to provide secondary containment.

s. 2. Attachment M1-1c(1)

Upon receipt and removal of CH TRU mixed waste containers from the TRUPACT-IIs, the waste containers are required to be in good condition as provided in Permit Module III. The waste containers will be visually inspected for physical damage (severe rusting, apparent structural defects, signs of pressurization, etc.) and leakage to ensure they are good condition prior to storage. Waste containers will also be checked for external surface contamination. If a primary waste container is not in good condition, the Permittees will overpack the container. The Permittees may initiate local decontamination, return unacceptable containers to a DOE generator site or send the TRUPACT-II to the third party contractor. Decontamination activities will not be conducted on containers which are not in good condition, or which are leaking. If local decontamination activities are opted for, the work will be conducted in the WHB Unit on the TRUDOCK. These processes are described in Section M1-1d. ~~The area previously designated as the Overpack and Repair Room will not be used for TRU mixed waste management in any instances.~~

Once unloaded from the TRUPACT-IIs, characterized CH TRU mixed waste containers (3-packs, 7-packs, SWBs, or TDOPs) are placed in one of two positions on the facility pallet. The 3- packs, 7-packs or SWBs are stacked, as they arrive in the TRUPACT-II, on the facility pallets (~~one- or~~ no more than two-high~~, depending on weight considerations~~). The use of facility pallets will elevate the waste ~~approximately 9.5 in. (24 cm)~~ from the floor surface. Pallets of characterized waste will then be relocated to a permitted storage area ~~the Northeast (**NE**) Storage Area of the WHB Unit for normal storage~~. ~~This NE Storage Area, which is shown in Figure M1-7, will be clearly marked to indicate the lateral limits of the storage area. This NE Storage Area will have a maximum capacity of seven pallets (1,856 ft^3 [52.6 m^3]) of TRU mixed waste containers during normal operations. These pallets will typically be staged in this area for a period of up to five days.~~

Once unloaded from the TRUPACT-IIs uncharacterized CH TRU mixed waste containers are placed on the facility pallet. Non-characterized TRU mixed waste are transferred by forklift to Room 108. Individual containers are placed upon containment pallets for movement through the waste characterization process using appropriate material handling equipment. Once through the waste characterization process these containers are stored in a permitted storage area until a sufficient quantity is available to reconfigure them for disposal. Once reconfigured the characterized waste is managed in the same manner as other characterized waste.

The total capacity of the storage areas is 3795 cubic feet (107.4 cubic meters). The distribution of that total capacity is at the discretion of the Permittees so long as the individual area capacities listed below are not exceeded.

Room 108, as shown in Figure M1-7, will be clearly marked to indicate the lateral limits of the

storage area. As illustrated in Figure M1-7 there will be two storage areas within Room 108, the Waste Not Sufficiently Characterized For Disposal Area and the Characterized Waste Area. The storage area in Room 108 will have a maximum capacity of 1,047 cubic feet (29.6 cubic meters) of TRU mixed waste.

Room 112 has also been designated as a storage area. This room will have a maximum capacity of 30 cubic feet (0.85 cubic meters). This storage area, which is shown in Figure M1-7, will be clearly marked to indicate the lateral limits of the storage area.

The WC Storage Area will have a maximum capacity of 30 cubic feet (0.85 cubic meters). This storage area is shown in Figure M1-7, and will be clearly marked to indicate the lateral limits of the storage area.

In addition, four TRUPACT-IIs, containing up to eight 3-packs, 7-packs or SWBs or four TDOPs, may occupy the staging positions at the TRUDOCK Storage Area of the WHB Unit. If waste containers are left in this area, they will be in the TRUPACT-II shipping container with or without the shipping container lids removed. The volume of waste in containers in four TRUPACT-IIs is 530.4 ft^3 (15 m^3).

The Derived Waste Storage Area of the WHB Unit is on the north wall of the CH Bay. This area will contain containers up to the volume of a SWB ~~for collecting derived waste from all TRU mixed waste handling processes in the WHB Unit~~. ~~The Derived Waste Storage Area is being permitted to allow containers in size up to a SWB to be used to accumulate derived waste.~~ The volume of TRU mixed waste stored in this area will be up to 66.3 ft^3 (1.88 m^3). The derived waste containers in the Derived Waste Storage Area will be stored on ~~standard drum~~ pallets, ~~which are polyethylene trays with a grated deck,~~ which will elevate the derived waste containers ~~approximately 6 in. (15 cm)~~ ~~from~~ sufficiently from the floor surface, and provide ~~approximately 50 gal (190 L) of~~ the required secondary containment capacity.

An area has also been designated for the temporary storage of waste containers for which manifest discrepancies were noted after the TRUPACT-IIs were opened, or for additional storage capacity as may be required during normal operations. Discrepant payloads will be placed either in the Shielded Storage Area of the WHB Unit on a facility pallet or inside a TRUPACT-II, depending on when the discrepancy is discovered. In either case the waste containers will be elevated ~~approximately six inches from~~ sufficiently from the floor surface. The storage capacity of this area is ~~one pallet load of TRU mixed waste containers (i.e., 4 SWBs, 2 TDOPs, or 28 drums, or combinations of all three)~~ 265 cubic feet (7.5 cubic meters).

Aisle space shall be maintained in all WHB Unit TRU mixed waste storage areas. The aisle space shall be adequate to allow unobstructed movement of fire-fighting personnel, spill-control equipment, and decontamination equipment that would be used in the event of an off-normal event. An aisle space of at least 44 in. (1.1 m) between ~~facility~~ pallets used for storing waste will be maintained in all WHB Unit TRU mixed waste storage areas. Pallets may be stacked end to end in rows, provided the minimum 44 inch (1.1m) spacing between rows is maintained.

s. 3. Attachment M1-1d

20.4.1.500 NMAC ~~4.1.500~~ (incorporating 40 CFR §264.173) requires that containers be managed in a manner that does not result in spills or leaks. Containers are required to be closed at all times, unless waste characterization activities are being performed or waste is being placed in the container or removed. Because containers at the WIPP will contain radioactive waste, safety concerns require that containers be continuously vented to obviate the buildup of gases

within the container. These gases could result from radiolysis, which is the breakdown of moisture by radiation. The vents, which are nominally 0.75 in. (1.9 centimeters [cm]) in diameter, are generally installed on or near the lids of the containers. These vents are filtered so that gas can escape while particulates are retained.

~~TRU mixed waste containers, containing off-site waste, are never opened at the WIPP facility.~~ Derived waste containers are kept closed at all times unless waste is being added or removed.

s. 4. Attachment M1-1d(2)

For inventory control purposes, TRU mixed waste container identification numbers will be verified against the Uniform Hazardous Waste Manifest upon arrival at the WIPP. ~~and the~~ For waste that is characterized prior to arrival at the WIPP facility, the container number will be verified against the number entered in the WWIS. Inconsistencies will be resolved with the generator before TRU mixed waste is emplaced. Discrepancies that are not resolved within 15 days will be reported to the NMED in accordance with 20.4.1.500 NMAC (incorporating 40 CFR §264.72). For waste characterized at the WIPP facility, the appropriate characterization information and associated container number will be entered into the WWIS at the WIPP facility.

Each facility pallet has two recessed pockets to accommodate two sets of 7-packs, two sets of 4-packs, two sets of three-packs, two SWBs stacked two high or two TDOPs, or any combination thereof. Each stack of waste containers will be secured prior to transport underground (see Figure M1-10). A forklift will transport the loaded facility pallet to the conveyance loading car inside the conveyance loading room located adjacent to the Waste Shaft or to the appropriate storage area. The conveyance loading room serves as an air lock between the ~~CH Bay~~ WHB and the Waste Hoist Shaft, preventing excessive air flow between the two areas. The conveyance loading car will be driven onto the waste hoist deck, where the loaded facility pallet will be transferred to the waste hoist, and the loading car will be backed off. Containers of CH TRU waste (55-gal (208 L) drums, SWBs, 85-gal (321 L) drums, 100-gal drums and TDOPs) can be handled individually, if needed, using the forklift and lifting attachments (i.e., drum handlers, parrot beaks).

s. 5. Attachment M1-1e(1)

The 7-packs, 4-packs, SWBs, 85-gallon drums, 100-gallon drums and TDOP's or individual containers in storage will be visually inspected ~~prior to each movement and, at a minimum,~~ weekly, to ensure that the waste containers are in good condition and that there are no signs that a release has occurred. Waste containers will be visually inspected for physical damage (severe rusting, apparent structural defects, signs of pressurization, etc.) and leakage. If a primary waste container is not in good condition, the Permittees will overpack the container. This visual inspection shall not include the center drums of 7-packs and waste containers positioned such that visual observation is precluded due to the arrangement of waste assemblies on the facility pallets. If waste handling operations should stop for any reason with containers located in the TRUDOCK Storage Area in the TRUPACT-II shipping containers, primary waste container inspections will not be accomplished until the containers of waste are removed from the TRUPACT-II. If the lid to the TRUPACT-II inner container vessel is removed, radiological checks (swipes of TRUPACT-II inner surfaces) will be used to determine if there is contamination within the TRUPACT-II. Such contamination could indicate a waste container leak or spill. Using radiological surveys, a detected spill or leak of a radioactive contamination from a waste container will also be assumed to be a hazardous waste spill or release.

s. 6. Attachment M1-1e(3)

M1-1e(3) Waste Characterization Facilities at WIPP

Permitted container storage will occur in **three** of the waste characterization areas. Those areas are:

1. Northwest Storage Area (Room 108)
2. Room 112
3. West Central (WC) Storage Area

Container storage and a headspace gas **(HSG)** sampling and analysis system are located in Room 108.

Container storage and equipment required to perform VE are located on Room 112. This equipment will be located in a containment structure. These systems are shown in Figure M1-15.

Periodically it may be necessary to move self-contained waste characterization equipment into the WHB in the vicinity of the WC Storage Area.

Containers requiring waste characterization will primarily be stored in Room 108, in the WC Storage Area, in Room 112 or within the permitted parking area storage unit. Containers requiring characterization may be stored in any other permitted storage area within the WHB if needed to facilitate efficient waste handling. Storage of containers requiring characterization will be on pallets or in areas that are bermed to provide secondary containment.. These pallets will either be managed in areas where the WHB floor provides secondary containment as described in Attachment M1 or the pallets will be capable of meeting the secondary containment requirements.

Containers will primarily be moved via forklift or pallet truck, although other methods may be used to facilitate efficient waste handling. Containers will be appropriately secured while in transit. The containers will be moved to the appropriate characterization area and remain in that area only as long as required to complete the characterization process. Containers will be stored only in permitted storage areas.

Typical transport routes for the containers to the characterization areas are shown in Figures M1-15 and M1-16

.

s. 7. Attachment M1-1f

Secondary containment at the NE Storage Area and the Shielded Storage Area inside the WHB Unit shall be provided by the WHB Unit floor (See Figure M1-1). The WHB Unit is engineered such that during normal operations, the floor capacity is sufficient to contain liquids upon release. Secondary Containment within Room 108, Room 112 and the Derived Waste Storage Area of the WHB Unit will be provided by containment pallets ~~a polyethylene standard drum pallet~~. The Parking Area Unit and TRUDOCK Storage Area of the WHB Unit require no engineered secondary containment since no waste is to be stored there unless it is protected by the TRUPACT-II shipping containers.

s. 8. Attachment M1-1f(1)

The maximum volume of TRU mixed waste that will be stored in the NE Storage Area of the WHB Unit is 1856 cubic feet (52.6 cubic meters). In order to facilitate the calculation of the secondary containment requirements the Permittees have employed container equivalents for this determination.

Sseven facility pallets @ 2 TDOPs (direct loaded) per pallet = 14 TDOPs of waste. 14 TDOPs @ 1200 gal (4550 L) per TDOP= 16,800 gal (63,700 L) waste container capacity. 16,800 gal (63,700 L) x ten percent of the total volume = 1, 680 gal (6,370 L) of waste. Since 1, 680 gal (6,370 L) is greater than 1,200 gal (4550 L), the volume of the largest single container, the configuration of all direct loaded TDOPs in the storage area is used for the calculation of secondary containment requirements. 1, 680 gal (6,370) L of liquid x one percent liquids = 16.8 gal (63.7 L) of liquid for which secondary containment is needed.

The maximum volume of TRU mixed waste that will be stored in the Room 108 of the WHB Unit is 1047 cubic feet (29.6 cubic meters). In order to facilitate the calculation of the secondary containment requirements the Permittees have employed container equivalents for this determination.

142 55-gallon drums of waste. 142 drums @ 55 gal (208 L) per drum = 7,810 gal (29,536 L) waste container capacity. 7,810 gal (29,536 L) x ten percent of the total volume = 781 gal (2,954 L) of waste. Since 781 gal (2,954 L) is greater than 55 gal (208 L), the volume of the largest single container, the configuration of all drums in the storage area is used for the calculation of secondary containment requirements. 781 gal (2,954 L) of liquid x one percent liquids = 7.81 gal (29.5 L) of liquid for which secondary containment is needed.

The maximum volume of TRU mixed waste that will be stored in Room 112 is 30 cubic feet (0.85 cubic meters). In order to facilitate the calculation of the secondary containment requirements the Permittees have employed container equivalents for this determination.

4 55-gallon drums of waste. 4 drums @ 55 gal (208 L) per drum = 220 gal (833 L) waste container capacity. 220 gal (833 L) x ten percent of the total volume = 2.2 gal (8.3 L) of waste. Since 2.2 gal (8.3 L) is less than 55 gal (208 L), the volume of the largest single container (a 55 gal (208L) drum) is used for the calculation of secondary containment. 55 gal (208 L) of liquid x one percent liquids = 0.55 gal (2.08 L) of liquid for which secondary containment is needed.

The maximum volume of TRU mixed waste that will be stored in the Shielded Storage Area of the WHB Unit is 265 cubic feet (7.5 cubic meters). In order to facilitate the calculation of the secondary containment requirements the Permittees have employed container equivalents for this determination.

Oone facility pallet @ 2 TDOPs (direct loaded) per pallet = 2 TDOPs of waste. 2 TDOPs @ 61,200 gal (4,550 L) per TDOP = 2,400 gal (9,100 L) waste container capacity. 2,400 gal (9,100 L) x ten percent of the total volume = 240 gal (910 L) of waste. Since 240 gal (910 L) is less than 61,200 gal (4,550 L), the volume of the largest single container, the volume of the largest container (a TDOP) in the storage area is used for the calculation of secondary containment requirements. 61,200 gal (4,550 L)) of liquid x one percent liquids = 12 gal (45.5 L) of liquid for which secondary containment is needed.

The maximum volume of TRU mixed waste that will be stored in the Derived Waste Storage Area of the WHB Unit is 66.3 cubic feet (1.88 cubic meters). In order to facilitate the calculation of the secondary containment requirements the Permittees have employed container equivalents

for this determination.

O~~n~~one SWB~~. 1 SWBs~~ @ 496 gal (1,878 L) per SWB = 496 gal (1,878 L) waste container capacity. Since the maximum storage volume of 496 gal (1,878 L) is equal to the volume of the largest single container, the volume of the a single SWB is used for the calculation of secondary containment requirements. 496 gal (1,878 L) of liquid x one percent liquids = 4.96 gal (18.8 L) of liquid for which secondary containment is needed.

s. 9. Attachment M1-1f(2)

The following is a calculation of the surface area the quantities of liquid would cover. Using a conversion factor of 0.1337 ft^3/gal (0.001 m^3/L) and assuming the spill is 0.0033 ft (0.001 m) thick, the following calculation can be used:

gallons x cubic feet per gallon ÷ thickness in feet = area covered in square feet

NE Storage Area

16.8 gal x 0.1337 ft^3/gal ÷ 0.0033 ft = 680.1 ft^2 (63.2 m^2)

Shielded Storage Area

12 gal x 0.1337 ft^3/gal ÷ 0.0033 ft = 486 ft^2 (45.2 m^2)

WC Storage Area

0.55 gal x 0.1337 ft^3/gal ÷ 0.0033 ft = 24.3 ft^2 (2.3 m^3)

The WHB Unit has 33,175 ft^2 (3,082 m^2) of floor space, the NE Storage Area in the northeast corner of the WHB Unit (Figure M1-7) has 2,924 ft^2 (272 m^2) of floor space, the WC Storage Area in the west central portion of the WHB has 750 ft^2 (69.75 m^3) and the Shielded Storage Area has 292.5 ft^2 (27.2 m^2) of floor space. Thus, the floor area of the NE Storage Area, the WC Storage Area and the Shielded Storage Area of the WHB Unit provide sufficient secondary containment to contain a release of ten percent of one percent of the volume of all of the containers, or one percent of the capacity of the largest container, whichever is greater.

Room 108; Room 112 and Derived Waste Storage Area

The containers in Room 108 and in Room 112 will be stored on containment pallets or in a bermed area, not to exceed four drums per pallet. The pallets or the containment berms provide sufficient secondary containment capacity.

s. 10. Attachment M1, Figure M1-1

The revised Figure is in Attachment B

s. 11. Attachment M1, Figure M1-7

The revised Figure is in Attachment B

s. 12. Attachment M1, Figure M1-9

The revised Figure is in Attachment B

s.13 Attachment M1, Figure M1-13

The revised Figure is in Attachment B

s.14 Attachment M1, Figure M1-13.1

The new Figure is in Attachment B

s. 15 Attachment M 1, Figure M1-15

The new Figure is in Attachment B

s.16 Attachment M1, Figure M1-16

The revised Figure is in Attachment B

s. 17. Attachment M1, Table of Contents

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M1-13	WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow Diagram For Waste That is Characterized at Off-Site Generator/Storage Facilities
M1-13.1	WIPP Facility Surface Uncharacterized CH Transuranic Mixed Waste Process Flow Diagram
M1-15	Waste Transportation Routes in the Waste Handling Building - Waste Characterization Process
M1-16	Waste Transport Routes in Waste Handling Building for Characterized Waste

t. Attachment O, Part A Application

Note: A revised copy of the Part A is included in Attachment B

u. 1. Attachment O, Part A Application

The process design capacity for the miscellaneous unit (composed of ten underground HWMUs in the geologic repository) shown in Section XII B, is for the maximum amount of waste that may be received from off-site generators plus the maximum expected amount of derived wastes that may be generated at the WIPP facility. In addition, two HWMUs have been designated as container storage units (S01) in Section XII. One is

inside the Waste Handling Building (WHB) and consists of the contact-handled (CH) bay, conveyance loading room, waste hoist entry room, RH bay, cask unloading room, hot cell, transfer cell, ~~and~~ facility cask loading room, Room 108, Derived Waste Storage Area, Shielded Waste Storage Area, WC Storage Area and Room 112. This HWMU will be used for waste receipt, handling, characterization, and storage (including storage of derived waste) prior to emplacement in the underground geologic repository. No treatment or disposal will occur in this S01 HWMU. The capacity of this S01 unit for storage is ~~87.7~~ 107.4 m^3 for CH waste. ~~based on 40 standard waste boxes or seven-packs of drums on pallets and in the TRUDOCKs, one standard waste box of derived waste, seven RH canisters in the transfer cell, and five RH canisters in the hot cell~~. The second S01 HWMU is the parking area outside the WHB where the Transuranic Package Transporter (TRUPACT-II) trailers and the road cask trailers will be parked awaiting waste handling operations. The capacity of this unit is ~~12 TRUPACT-IIs and three road casks or four rail casks with a combined volume of~~ 47.1 m^3. ~~The railroad side tracks are included in this area to accommodate rail shipments of RH TRU mixed waste.~~ The HWMUs are shown in Appendix O3 as Figures O3-2, O3-3, and O3-4.

During the ten year period of the permit, up to 52,110 m^3 of CH waste ~~and 1,954 m^3 of RH waste~~ could be emplaced in Panels 1 to 3. A fourth HWMU (Panel 4), plus disposal area access drifts (designated as Panels 9 and 10), will be constructed under this permit. These latter areas will not receive waste for disposal under this permit.

Item 2
Combine Project Level and Permittees Level Review Requirements and Substitution of Characterization at WIPP For Off-Site Audit Program

Description:

For waste characterized at the WIPP facility the Permittees will be combining the Project Level and the Permittees Level of verification and validation requirements. These changes will not compromise the quality of the data being generated. The Permittees are also eliminating the audit program and subsequent NMED approval of the final audit report for waste characterization activities performed by the Permittees.

Basis:

The WIPP Hazardous Waste Facility Permit (Permit) mandates that waste that is not characterized at WIPP must currently undergo extensive data review, verification and validation. Further, the Permit requires that the program implementing these activities undergo a rigorous audit by the Permittees and the subsequent final audit report be approved by the NMED.

The Project Level review, verification and validation requirements and the audit and surveillance program that the Permit imposes on waste that is not characterized at WIPP is due, in large part, to the fact that there was no other mechanism by which WIPP could verify, to the satisfaction of the NMED, that the data generated off-site was accurate, precise, complete, representative and comparable. However, a significantly different situation exists for waste characterized at the WIPP facility. Since the Permittees will be performing all relevant waste characterization activities at the WIPP facility and since those processes are under the direct control of the Permittees, data validation and verification can occur simultaneously with the Permittees Level of review. Furthermore, unlike the case in the permit where waste characterization occurs off-site and out of New Mexico, a significantly larger portion of waste characterization data and records will be readily available for inspection by the NMED, thereby allowing NMED to evaluate the accuracy, precision, completeness, representativeness, and comparability of the data at any time. Therefore, for waste that will be characterized at WIPP the Project Level review, verification and validation activities that are mandated by the Permit will be functionally combined with the Permittee Level of review. In addition, the audit and surveillance requirements mandated by the Permit for off-site waste characterization activities are satisfied with the Permittees QA/QC Program as defined in the Permittees' Quality Assurance Program Description (QAPD).

Combining the Project Level and Permittee Level QA/QC Activities

Since waste will now be characterized at WIPP the separate Project Level and Permittee Level QA/QC requirements imposed by the Permit are no longer germane. In the Permit, the Project Level has three functions:

Data review, verification and validation as defined in Section B3-10b;
Reconciliation with data quality objectives as defined in Section B3-11a; and

Reporting as defined in Section B3-12b.

Through these functions, the Project Level completes the following activities:

Verifying that Batch Data Reports are complete
Verifying that all required QC checks and data reviews were done properly
Ensuring that data quality objectives are met
Assembling data into container and waste stream packages
Preparation of Waste Stream Profile Forms and Characterization Information Summaries
Assembling Waste Stream Characterization Packages if requested by the Permittees

At the Permittee Level, similar activities are mandated as follows:

Data verification and approval as defined in Section B3-10c
Data reconciliation as defined in Section B3-11b

Much of the activity at the Project Level is designed to assure that the data that are passed to the Permittee's Level are of sufficient quality to facilitate the Permittee review and approval. This assurance is premised on the remoteness of the data generation facilities from the WIPP and the lack of direct control by the Permittees and direct oversight by the NMED. These concerns are obviated when waste characterization activities are performed by the Permittees. The characterization of waste at WIPP will be performed under rigorous QA/QC constraints and in accord with the Waste Analysis Plan (WAP). The Permittees' will maintain direct control over all procedures employed in the characterization process and the NMED will have the ability to review and oversee all processes at anytime. As the result, a different approach is appropriate for data verification and validation when data are generated by the Permittees at the WIPP facility. This approach, while maintaining the functions of the Project Level and Permittee Level review, allows both to be performed simultaneously and eliminates redundant activities.

Elimination of the Permittee's Audit and Surveillance Program

The intent of the audit program in the Permit is to ensure that generator sites have implemented and complied with the applicable portions of the Waste Analysis Plan (WAP). For waste that will be characterized by the Permittees the basis for auditing the waste characterization process in the manner specified in the Permit no longer exists.

The Permittees' will develop a Quality Assurance Project Plan (QAPjP) which will detail the goals, protocols, procedures, and quality objectives which will ensure that the data generated is of a quality commensurate with the waste disposal requirements at WIPP.

The Permittees' will then use their in house QA program to conduct independent quality assurance reviews of the on-site waste characterization program. These in-house assessments will accomplish the same purposes as the Permittees Audit and Surveillance Program. Specifically this QA audit program will:

- Provide guidance on quality related matters
- Identify and report quality problems
- Review and approve any project nonconformances
- Initiating a stop-work order if quality work is not assured
- Ensure that independent assessments and surveillances are conducted
- Assess characterization facility quality affecting activities
- Evaluate trends
- Generate required QA/QC reports

This level of scrutiny will ensure that data generated at WIPP is of sufficient quality to comply with the WIPP Waste Acceptance Criteria (WAC) and allow disposal of TRU waste in accordance with the Waste Analysis Plan (WAP) and in an environmentally sound manner.

Furthermore, records of this review will be maintained at the WIPP facility to allow for inspection by the NMED, at anytime, to assure the adequacy of characterization. Consequently, prior review of the waste characterization program and approval by NMED is unnecessary.

Because this modification requires a change to the Quality Assurance Program as it applies to sampling and analysis, it is classified as a Class 2 change in accordance with 20.4.1.900 NMAC (incorporating 40 CFR Part 270.42, Appendix 1, Item B.2.a).

This change does not reduce the capacity of the WIPP facility to protect human health or the environment.

Discussion:

In written testimony at the Hazardous Waste Facility permit hearing, the NMED stated: "Because the Applicants do not intend to conduct waste characterization at WIPP, NMED must implement an oversight process, such as audits, to ensure that the Permittees' comply with the applicable portions of the WAP."

The NMED further provided written testimony that "As a result the only method to ensure compliance with the WAP is to audit the generator Sites. Simply, the permit conditions regarding audit reporting and oversight is critical to the WIPP permit because they ensure compliance with the WAP. NMED cannot regulate the Sites, but it can regulate the Applicants to ensure they enforce the WAP diligently at the Sites."

In additional written testimony it was stated: "NMED is concerned about how potential breakdowns in the waste characterization process at the generator sites would be identified and at what level of severity NMED would be notified. 20 NMAC .4.1, Subpart V, 264.13(a)(4) requires inspection and, if necessary, analysis of waste received by the owner/operator of an off-site facility. Since DOE will not be conducting analysis of wastes received at WIPP, NMED needs assurances that the process of waste characterization at the generator sites is adequately monitored and audited, and that any significant failures are disclosed to NMED in a timely fashion."

The WIPP waste characterization permit modification places the waste characterization

and analysis program activities within the direct regulatory purview of the NMED. This does not relieve the Permittees of the obligation to audit and assess the program, however, it does remove the driver for an activity involving audits and audit report approvals as detailed in the Permittees Audit and Surveillance Program.

The NMED's Findings of Fact and the Conclusions of Law which resulted from the DOE Permit Hearing concluded that Permit Condition II.C.2 (which mandates the audit program) was necessary for various reasons. Those include:

1. "The permit application was deficient because it did not...contain all of the information which must be known to store and dispose waste properly in accordance with 40 CFR Part 264 and did not provide NMED participation, review, and approval, as required by 20 NMAC 4.1.500 and 900..."

2. Condition II.C.2... is reasonable...in order to ensure the Permittees are able to demonstrate compliance with the WAP by conducting physical and chemical analyses of representative samples of waste."

3. Condition II.C.2...is reasonable ...in order to provide written procedures for the Waste Analysis Plan

The Permittees believe that they have removed these concerns, with this modification, by showing that the waste characterization requirements as specified in 20.4.1.500 NMAC (incorporating 40 CFR § 264.13(a)) have been met. Specifically, the Permittees

- will mandate that the relevant QA/QC requirements specified within SW-846 and TO-14A be implemented

- will assure that the waste characterization process performed at the WIPP facility and associated records are open to review and inspection by the NMED at anytime.

The attached revised text may contain verbiage which has also been amended in Item 1. Item 1 text is shown in addition to Item 2 text. Item 2 can be distinguished as follows:

Additional text in Item 2 is shown in ***red, bold italic***
Strikeouts in Item 2 are shown as ~~**bold strikeout**~~
Text appearing in normal red, or ~~normal strikeout~~ are from Item 1 or from previous (pending) Class 2 modifications.

Revised Permit Text:

a.1. Module II.C.1.e

Acceptable knowledge - the Permittees shall require generator/storage sites to assemble acceptable knowledge documentation and confirm acceptable knowledge determinations, and shall audit (***for those facilities which are subject to the Audit Program*** as specified in Permit Condition II.C.2) all aspects of the acceptable knowledge waste characterization process as specified in Permit Attachment B4 (TRU

Mixed Waste Characterization Using Acceptable Knowledge).

a. 2. Module II.C.2

Audit and Surveillance Program

For waste characterized at the WIPP facility the NMED has regulatory authority over the WIPP facility and all characterization process are open to review, inspection, verification and validation at anytime. Therefore, an audit and surveillance program as described in this permit is not required for waste characterized at the WIPP facility. The audit and surveillance requirements pertain to generator/storage sites that do not characterize waste at WIPP. The following does not apply when waste is characterized at the WIPP facility.

The Permittees shall not ~~manage, store, or~~ dispose TRU mixed waste at WIPP from an off-site generator/storage site until the following conditions have been met as necessary for the Secretary to determine that the characterization requirements of Permit Condition II.C.1 have been implemented:

b.1. Attachment B Introduction

Some TRU mixed waste is retrievably stored at the DOE generator/storage sites. Additional TRU mixed waste will be generated and packaged into containers at these generator/storage sites in the future. TRU mixed waste will be retrieved from storage areas at a DOE generator/storage site. Retrievably stored waste is defined as TRU mixed waste generated after 1970 and before NMED notifies the Permittees, by approval of the final audit report, ***(for waste characterization facilities requiring final audit report approval)*** that the characterization requirements of the WAP at a generator/storage site have been implemented. Newly generated waste is defined as TRU mixed waste generated after NMED approves the final audit report for a generator/storage site ***(for waste characterization facilities requiring final audit report approval)***. Retrievably stored TRU mixed waste will be characterized on an ongoing basis, as the waste is retrieved. Newly generated TRU mixed waste shall be characterized as it is generated. Waste characterization requirements for retrievably stored and newly generated TRU mixed wastes differ, as discussed in Sections B-3d(1) and B-3d(2).

b. 2. Attachment B Introduction

The Permittees will audit generator/storage site waste characterization programs and activities, as described in Section B-3, ***for those off-site generator/ storage sites that are fully characterizing waste, including sampling and analysis***.

b. 3. Attachment B-1a Waste Stream Identification Footnote 2

[3] "Auditable records" mean those records which allow the Permittees to conduct a systematic assessment, analysis, and evaluation of the Permittees compliance with the WAP and this Permit. ***For generator/storage sites that are subject to the Permittees Audit Program permit requirement.***

b. 4. Attachment B-1c

Before ~~accepting~~ disposing a container holding TRU mixed waste, the Permittees will ensure, in accordance with the WAP, ~~through audit~~ and as part of their Permittee-level data reviews(Section B3-10c), that generator/storage sites examine the radiography or visual examination data records (Section B-4b) to verify that the container holds no unvented compressed gas containers and that residual liquid does not exceed 1 percent volume in any payload container. If discrepancies or inconsistencies are detected during the data review, the generator/storage site will review the radiography video tape or visual examination tape to verify that the observed physical form of the waste is consistent with the waste stream description provided by the generator and to ensure that no prohibited items are present in the waste. Radiography tapes, from waste not characterized at WIPP, will be selected randomly from at least one percent of containers received at WIPP and will be reviewed and compared to radiographic data forms. All personnel who review radiography video tapes will be trained to the same standard as radiography operators. Section B-4 includes a description of the waste verification process that the Permittees will conduct prior to ~~receiving a shipment~~ waste disposal at the WIPP facility. ***For waste characterized at the WIPP facility, radiography and/or visual examination are used to confirm the determination made by the generator/storage site with regards to unvented containers, free liquids, or residual liquids.***

b. 5. Attachment B-3a(3)

Laboratory Qualification

The Permittees will ensure that ~~generator/storage sites conduct~~ analyses conducted for the WIPP waste characterization program use ~~using~~ laboratories that are qualified through participation in the Performance Demonstration Program (DOE, 1995c, d). Required QAOs are specified in Permit Attachment B3. In addition, methods and supporting performance data demonstrating QAO compliance shall be ensured by the Permittees during the annual certification audit ***(for those sites characterizing waste under the audit program).***

b. 6. Attachment B-3b

Acceptable Knowledge

Acceptable knowledge (**AK**) is used in TRU mixed waste characterization activities in three ways:

- To delineate TRU mixed waste streams
- To assess whether TRU mixed heterogenous debris wastes exhibit a toxicity characteristic (20.4.1.200 NMAC, incorporating 40 CFR §261.24)
- To assess whether TRU mixed wastes are listed (20.4.1.200 NMAC, incorporating 40 CFR §261.31)

Acceptable knowledge is discussed in detail in Permit Attachment B4, which outlines the minimum set of requirements***, for shipment and disposal,*** which shall be met by the generator/storage sites in order to use acceptable knowledge. In addition, Section B-4b(1) of this permit attachment describes the verification of acceptable knowledge through sampling and analysis and the Permittees' Audit and Surveillance Program ***for those sites characterizing waste under the audit program***.

b. 7. Attachment B-4

Data Verification and Quality Assurance

The Permittees and the generator/storage sites will assure that waste characterization meets WAP requirements through data validation, usability and reporting controls. ***For waste not characterized at WIPP v*** ~~V~~erification occurs at three levels: 1) the data generation level, 2) the project level, and 3) the Permittee level. The validation and verification process and requirements at each level is described in Section B3-10. ***For waste characterized at WIPP, the Project level requirements may be combined with the Permittee level and will consist of verification and validation to ensure that applicable Permit requirements are met.***

b. 8. Attachment B-4a(1)

Reconciliation of these DQOs by the Generator/Storage Site Project Manager ***or their designee*** is addressed in Permit Attachment B3. Reconciliation requires determining whether sufficient type, quality, and quantity of data have been collected to ensure the DQO's cited above can be achieved.

b. 9. Attachment B-4a(3)

~~The generator/storage sites will implement a~~A sample handling and control program will be implemented by organizations performing characterization for WIPP that will include the maintenance of field documentation records, proper labeling, and a chain of custody (**COC**) record. ~~The generator/storage site~~ A Quality Assurance Project Plan (**QAPjP**) or procedures referenced in the QAPjP will document this program and include COC forms to control the sample from the point of origin to the final analysis result reporting. For off-site characterization facilities, t~~T~~he Permittees will review and approve the QAPjP, including their determination that the sample control program is adequate. The approved QAPjP will be provided to NMED prior to shipment of TRU mixed waste and, ***for those sites subjected to the Permittee's Audit and Surveillance program,*** before the generator/storage site audit, as specified in Permit Attachment B5. Details of this sample control program are provided in Permit Attachment B1 and are summarized below to include:

b. 10. Attachment B-4a(4)

For sites not characterizing waste at WIPP t ~~T~~he Permittees shall perform audits of the ~~generator/storage site~~ waste characterization programs, as implemented by the ~~generator/storage site~~ QAPjP, to verify compliance with the WAP, and the DQOs in this WAP (See Permit Attachment B6 for a discussion of the content of the audit program). The primary functions of these audits are to review ~~generator/storage sites~~ adherence to the requirements of this WAP and assure adherence to the WAP characterization program (refer to Permit Attachment B3-10 for report contents). The Permittees shall provide the results of each audit to NMED. If audit results indicate ~~that a generator/storage site is not in~~ non-compliance with the requirements of this WAP, the Permittees will take appropriate action (Permit Attachment B6).

The waste characterization program at WIPP is under the regulatory purview of the NMED and open to examination and review by the NMED at anytime. Therefore, a separate audit and approval process as described herein is not required. The NMED shall have access to waste characterization records at anytime at the WIPP facility.

b. 11. Attachment B-4b(1)

~~The first phase of the waste screening and verification process will occur before TRU mixed waste is shipped to the WIPP facility.~~ Before the Permittees begin the process of accepting TRU mixed waste from a generator/storage site that is characterizing waste prior to shipment to the WIPP for disposal, ***and, therefore is subject to the Permittee's Audit and Surveillance Program,*** an initial audit of that ~~generator/storage~~ site will be conducted as part of the Permittees' Audit and Surveillance Program (Permit Attachment B6). The RCRA portion of the generator/storage site audit program will provide on-site verification of characterization procedures; Batch Data Report preparation; and record keeping to ensure that all applicable provisions of the WAP requirements are met. Another portion of the Phase I verification is the Waste Stream Profile Form approval process for waste streams characterized off-site by the generator/storage site. At the WIPP facility, this process includes verification that all of the required elements of a Waste Stream Profile Form are present and that the summarized waste characterization information meet acceptance criteria required for compliance with the WAP (Section B3-12b(1)).

b. 12. Attachment B-4b(1)(iii)

Permittees' Audit and Surveillance Program

An important part of the Permittees' verification process ***for waste that is not characterized at WIPP*** is the Permittees' Audit and Surveillance Program. The focus of this audit program is compliance with this WAP and the Permit. This audit program addresses all waste sampling and analysis activities, from waste stream classification assignment through final loading of the TRUPACT-II, and ensures compliance with SOPs and the WAP. Audits will assure that containers and their associated documentation are adequately tracked throughout the waste handling process. Operator qualifications will be verified, and QA/QC procedures will be surveyed. A final report that includes generator/storage site audit results and applicable WAP-related corrective action report (**CAR**) resolution will be provided to NMED for approval, and will be kept in the WIPP facility operating record until closure of the WIPP facility.

An initial audit will be performed at each ***off-site*** generator/storage ~~***site***~~***facility fully characterizing waste streams for disposal*** ~~**performing waste characterization activities**~~ prior to the formal acceptance of the ***completed*** Waste Stream Profile Forms and/or any waste characterization data supplied by the generator/storage sites. Audits will be performed at least annually thereafter, including the possibility of unannounced audits (i.e., not a regularly scheduled audit). These audits will allow NMED to verify that the Permittees have implemented the WAP and that generator/storage sites have implemented a QA program for the characterization of waste and meet applicable WAP requirements. The accuracy of physical waste description and waste stream assignment provided by the generator/storage site will be verified by review of the radiography results, and visual examination of data records and radiography images (as necessary) during audits conducted by the Permittees. More detail on this audit process is provided in Permit Attachment B6.

The waste characterization program at WIPP is under the regulatory purview of the NMED and open to examination and review by the NMED at anytime. Therefore, a separate audit and approval process as described herein is not required. The NMED shall have access to waste characterization records at anytime at the WIPP facility.

c. 1. Attachment B1-3b

Radiography training programs will be the subject of the Permittees' Audit and Surveillance Program (Permit Attachment B6)***for generator/storage sites that are not characterizing their waste at the WIPP facility***. ***Similar training programs will be instituted at the WIPP facility and will be subject to the Permittees' routine QA assessment program.***

d. 1. Attachment B3 Introduction

Waste that is characterized at WIPP will undergo review, verification and validation at the data generation level and the Permittee level. The review, verification and validation at the data generation level will apply only to headspace gas analysis data since they are the only analytical data that will be collected at the WIPP facility under the WIPP facility waste characterization program. The validation and verification activities will comply with the applicable requirements specified within EPA's SW-846 and, when applicable, the requirements specified within EPA's Compendium Method TO-14A.

The data generation level and Permittees level review, verification and validation for the results of all other characterization procedures will comply with the current WAP requirements.

The project level review, verification and validation will be combined with the Permittee Level for waste that is characterized at the WIPP facility.

All characterization equipment, personnel, procedures, and data are available for scrutiny and inspection by the NMED at anytime. The WIPP characterization facility will also undergo both procedural and operational review in accordance with the Quality Assurance Program Description (QAPD).

d. 2. Attachment B3-1

The Permittees shall ~~be responsible for evaluating generator/storage site~~require the evaluation of~~-~~data usability and shall assess implementation through the generator/storage site audit ***for those sites where the audit is a permit requirement.***

d. 3. Attachment B3-4

Precision

The qualitative determinations, such as verifying the waste matrix code, made during radiography do not lend themselves to statistical evaluation of precision because of the qualitative nature of the inspection. However, comparison of data derived from radiography and visual examination on the same waste containers at the Rocky Flats Environmental Technology Site and the Idaho National Engineering Laboratory indicates that radiography operators can provide estimated inventories and weights of waste items in a waste container. As a measure of precision, the Permittees shall require each Site Project QA Officer ***or their designee*** to calculate and report the RPD between the estimated waste material parameter weights as determined by radiography and these same parameters as determined by visual examination. Additionally, the precision of radiography is verified prior to use by tuning precisely enough to demonstrate compliance with QAOs through viewing an image test pattern.

Accuracy

The programmatic accuracy at which the waste matrix code and waste material parameter

weights can be determined must be documented through visual examination of a randomly selected statistical portion of waste containers. The Permittees shall require the Site Project QA Officer ***or their designee*** to calculate and report the miscertification rate of waste containers that require assignment to a different waste matrix code or are found to contain prohibited items after visual examination as a measure of radiography accuracy. The miscertification rate shall be used to determine the number of drums subject to confirmatory visual examination.

Completeness

An audio/videotape (or equivalent media) of the radiography examination and a validated radiography data form will be obtained for 100 percent of the retrievably stored waste containers in the program for all waste containers subject to radiography. All audio/videotapes (or equivalent media) and radiography data forms will be subject to validation as indicated in Section B3-10 ***for all waste not characterized at WIPP***.

d. 4. Attachment B3-9

- Precision - Precision is the agreement among a set of replicate measurements without assumption of the knowledge of a true value. The qualitative determinations, such as compiling and assessing acceptable knowledge documentation, do not lend themselves to statistical evaluations of precision. However, the acceptable knowledge information will be addressed by the independent review of acceptable knowledge information during internal ***reviews of acceptable knowledge data base for waste to be characterized at WIPP*** and external audits ***for those generator storage sites not employing WIPP for waste characterization***.

- Accuracy - Accuracy is the degree of agreement between an observed sample result and the true value. The percentage of waste containers which require reassignment to a new waste matrix code and/or designation of different hazardous waste codes based an the reevaluation of acceptable knowledge and sampling and analysis data will be reported as a measure of acceptable knowledge accuracy.

- Completeness - Completeness is an assessment of the number of waste streams or number of samples collected to the number of samples determined to be useable through the data validation process. The acceptable knowledge record must contain 100 percent of the required information (Permit Attachment B4-3). The usability of the acceptable knowledge information will be assessed for completeness ~~**during audits**~~ ***by the Permittees Characterization Project Manager or during audits for those generator/storage sites participating the audit program.***

The Permittees shall require each site to address quality control by tracking its performance with regard to the use of acceptable knowledge by: 1) assessing the frequency of inconsistencies among information, and 2) documenting the results of acceptable knowledge confirmation through radiography, visual examination, headspace-gas analyses, and solidified waste analyses. In addition, the acceptable knowledge process and waste stream documentation must be evaluated through internal assessments by quality assurance organizations ***or*** ~~**and**~~ assessments by auditors external to the organization (i.e., the Permittees) ***for waste that is not characterized at WIPP***.

d. 5. Attachment B3-10

Data Review, Validation, and Verification Requirements

Procedures shall be developed for the review, validation, and verification of data at the data generation level; the validation and verification of data at the project level; and the verification of data at the Permittee level ***for all waste not characterized at WIPP. For waste that is characterized at WIPP validation and verification of data at the project level and at the Permittee level will be combined***. Data review determines if raw data have been properly collected and ensures raw data are properly reduced. Data validation confirms that the data reported satisfy the requirements of this WAP and is accompanied by signature release. Data verification authenticates that data as presented represent the sampling and analysis activities as performed and have been subject to the appropriate levels of data review. The requirements in this section ensure that WAP records furnish documentary evidence of quality.

The Permittees shall require the ***generator/storage*** sites ***(including the WIPP waste characterization facility)*** to generate the following Batch Data Reports in either electronic or hard copy format***, as appropriate*** for data validation, verification, and quality assurance activities:

d. 6. Attachment B3-10b

Data validation and verification at this level involves scrutiny and signature release from the Site Project Manager (or designee) and the Site Project QA Officer (or designee). The Permittees shall require each site to meet the following minimum requirements for each waste container. Any nonconformance identified during this process shall be documented on a nonconformance report (Section B3-13). ***Project Level review, verification and validation will be combined with the Permittee level for waste that is characterized at the WIPP facility.***

d. 7. Attachment B3-10c

The final level of data verification occurs at the Permittee level and must, at a minimum, consist of an inventory check of the Batch Data Reports to verify completeness. This is done through the Permittees' Audit and Surveillance Program (Permit Attachment B6) ***for generator/storage sites characterizing their waste for disposal prior to shipment to the WIPP facility***.

For initial Waste Stream Profile Form approval, the Permittees must verify that each submittal is complete and ***for waste characterized at the originating site,*** notify the originating site in writing of the approval of the Waste Stream Profile Form. The Permittees will maintain the data as appropriate for use in the regulatory compliance programs. At a minimum the verification must:

d. 8. Attachment B3-11

Reconciliation with Data Quality Objectives

Reconciling the results of waste testing and analysis with the DQOs provides a way to ensure that data will be of adequate quality to support the regulatory compliance programs. When waste is characterized at sites other than WIPP, r**R**econciliation with the DQOs will take place at both the project level and the Permittees' level as described below. When waste is characterized at WIPP, reconciliation with the DQO's will be the responsibility of the Permittees'

Characterization Project Manager and will occur prior to disposal. ~~**At the project level, reconciliation will be performed by the Site Project Manager; at the Permittees' level, reconciliation will be performed as described below.**~~

d. 9. Attachment B3-11a

Reconciliation at the Project Level

When waste is not characterized at WIPP t ~~T~~he Permittees shall require each Site Project Manager to ensure that all data generated and used in decision making meet the DQOs provided in Section B-4a(1) of Permit Attachment B. To do so, the Site Project Manager must assess whether data of sufficient type, quality, and quantity have been collected. The Site Project Manager must determine if the variability of the data set is small enough to provide the required confidence in the results. The Site Project Manager must also determine if, based on the desired error rates and confidence levels, a sufficient number of valid data points have been determined (as established by the associated completeness rate for each sampling and analytical process). In addition, the Site Project Manager must document that random sampling of containers was performed for the purposes of waste stream characterization.

The responsibilities of the Site Project Manager will be assumed by the Permittees Characterization Project Manager when waste is characterized at WIPP.

d. 10. Attachment B3-12b

The site project office shall prepare a Waste Stream Profile Form for each waste stream certified for shipment to WIPP. ***For waste not characterized at WIPP s*** ~~S~~ummarized testing, sampling, and analytical characterization is included with the Waste Stream Profile Form. The contents of the Waste Stream Profile Form, the Characterization Information Summary, and the Waste Stream Characterization Package are discussed in the following sections. A Waste Stream Characterization Package must be submitted when requested by the Permittees.

For waste characterized at WIPP the data will be reviewed, verified and validated at the Permittees level under the auspices of the Permittees Characterization Project Manager.

d. 11. Attachment B3-12b(1)

The Waste Stream Profile Form (Figure B-1) includes the following information:

- Generator/storage site name
  - Generator/storage site EPA ID
  - Date of audit report approval by NMED (~~if obtained~~ ***for generator storage sites subject to the Permittees Audit and Surveillance Program***)
  - Assignment of waste stream description
  - Summary Category Group
  - Waste Matrix Code Group

- **!** Waste stream name
- **!** Applicable EPA hazardous waste codes
- **!** Applicable TRUCON codes
- **!** Certification signature of Site Project Manager, name, title, and date signed

d. 12. Attachment B3-13

Nonconformances

The Permittees shall require the status of work and the WAP activities at participating ~~generator/storage~~ sites to be monitored and controlled by the Site Project Manager and Site Project QA Officer. This monitoring and control shall include nonconformance identification, documentation, and reporting. ***When waste is characterized at WIPP this function will be the responsibility of the Permittees' Characterization Project Quality Assurance Officer.***

d. 13. Attachment B3-15

Changes to WAP Related Plans or Procedures

Controlled changes to WAP related plans or procedures shall be managed through the document control process described in the QAPD. The Site Project Manager and the Site Project Officer shall review all non-administrative changes and evaluate whether those changes could impact DQOs specified in the Permit. After ***any required*** site certification, any changes to WAP related plans or procedures that could positively or negatively impact data quality objectives (I. e., those changes that require prior approval of the Permittees as defined in Section B5-2) shall be reported to the Permittees within five (5) days of identification. ~~**by the project level review.**~~ The Permittees shall send NMED a monthly summary briefly describing the changes to plans and procedures identified pursuant to this section during the previous month.

e. 1. Attachment B4-2

Acceptable Knowledge Documentation

The Permittees shall obtain, prior to disposal, from each Department of Energy (**DOE**) TRU mixed waste generator/storage site (**site**) a logical sequence of acceptable knowledge information that progresses from general facility information (TRU Mixed Waste Management Program Information) to more detailed waste-specific information (TRU Mixed Waste Stream Information). Traceability of acceptable knowledge information for a select drum in the audited Waste Summary Category Group(s) will be examined during the Permittees' audit of a site (Section B4-3f) ***(for generator/storage sites where the Permittees Audit and Surveillance Program is a requirement)***. The consistent presentation of acceptable knowledge

documentation among sites in auditable records[4] will allow Waste Isolation Pilot Plant (**WIPP**) personnel to verify the completeness and adequacy of acceptable knowledge for TRU mixed waste characterization during the audit process. The ~~Permittees~~ generator/storage site shall implement ~~the~~ an acceptable knowledge process ~~as specified in this Permit~~ to characterize TRU mixed wastes. For generator/storage sites that intend to ship waste to the WIPP facility for characterization, the acceptable knowledge process will be consistent with the requirements of 20.4.1.300 NMAC (incorporating 40 CFR Part 262) or the equivalent regulation in the generator/storage site's state[5]. All generator storage sites must meet the acceptable knowledge documentation requirements of the WAP. If a generator/storage site characterizes waste at their site for disposal at WIPP that generator/storage site is responsible for developing and implementing an AK procedure. If waste is characterized for disposal at the WIPP facility the Permittees will develop an AK procedure which the generator/storage sites will follow. NMED may independently validate the implementation of and compliance with applicable provisions of the WAP at each generator/storage site by participation in the Permittees' Audit and Surveillance Program (Permit Attachment B6) ***(for generator/storage sites where the Permittees Audit and Surveillance Program is a requirement)***, or at the WIPP, by inspection of the operating record for waste characterized at the WIPP facility. The Permittees shall provide NMED with current audit schedules and notify NMED in writing no later than thirty (30) calendar days prior to each audit. NMED may choose to accompany the Permittees on any audit of the WAP implementation ***(for generator/storage sites where the Permittees Audit and Surveillance Program is a requirement)***.

e. 2. Attachment B4-3

Acceptable Knowledge Training, Procedures and Other Requirements

The Permittees shall require consistency among sites in using acceptable knowledge information to characterize TRU mixed waste for disposal by the use of the following three phase process: 1) compiling the required and supplemental acceptable knowledge documentation ~~in~~ into an auditable record, 2) confirming and updating acceptable knowledge information using radiography and/or visual examination or a form of visual examination, headspace-gas sampling and analysis, ~~and~~ or homogeneous waste sampling and analysis as appropriate, and 3) auditing acceptable knowledge records ***(for generator/storage sites where the Permittees Audit Program is a requirement)***. This section specifies qualification and training requirements, describes each phase of the process, specifies the procedures that the Permittees shall require all sites to develop to implement the requirements for using acceptable knowledge, and specifies data quality requirements for acceptable knowledge.

e. 3. Attachment B4-3f

Audits of Acceptable Knowledge

For waste that is characterized at the WIPP facility the audit program requirements as contained within Attachment B4 no longer apply. The WIPP Waste Characterization Team will monitor and assist each generator/storage site which is shipping waste to the WIPP facility for characterization. They will assist in the assembly of all of the necessary

[4]"Auditable records" mean those records which allow the Permittees to conduct a systematic assessment, analysis, and evaluation of the Permittees compliance with the WAP and this Permit.

[5]To perform this activity, generator/storage sites may use USEPA publication OSWER 9938.4-03 entitled: "Waste Analysis At Facilities That Generate, Treat, Store and Dispose of Hazardous Waste" and/or other relevant guidance.

acceptable knowledge documentation; if necessary, complete the required shipping information and ensure that the applicable portions of Attachment B4 have been met. The AK procedures as well as the personnel performing the AK documentation will be located at the WIPP facility, will be audited as part of the Permittees in house QA assessment program, and will be available for review by NMED at anytime.

f. 1. Attachment B6

Introduction

These audit and surveillance requirements as well as the attached checklists apply only to generator/storage sites that do not characterize their waste at WIPP. WIPP is subject to NMED regulatory review, inspection and oversight at anytime and therefore the specific checklist in the this Attachment does not apply to the waste characterization facility at WIPP.

The Waste Isolation Pilot Plant (**WIPP**) Permittees' Audit and Surveillance Program shall ensure that: 1) the operators of each generator/storage site (**site**) that plan to ~~transport~~ dispose transuranic (**TRU**) mixed waste ~~to~~at the WIPP facility conduct sampling and analysis of wastes in accordance with the current WIPP Waste Analysis Plan (**WAP**) (Permit Attachment B), and 2) the information supplied by each site to satisfy the waste screening and acceptability requirements of Section B-4 of the WAP is being managed properly. The Permittees will conduct these audits and surveillances at each site in accordance with a standard operating procedure (**SOP**). NMED personnel may observe these audits to validate the implementation of WAP requirements (Permit Attachment B) at each site. The audit SOP will contain steps for selecting audit personnel, reviewing applicable background information, preparing an audit plan, preparing audit checklists, conducting the audit, developing an audit report, and following up audit deficiencies. A deficiency is any failure to comply with an applicable provision of the WAP. The checklists for each site shall include, at a minimum, the appropriate checklists found in Tables B6-1 through B6-6 for the summary category groups undergoing audit.

ATTACHMENT B
SUPPLEMENTARY INFORMATION

ITEM 1.d.23
Figure B-1 (Click to view)

ITEM 1.d.24
Figure B-3 (Click to view)

ITEM 1.d.25
Figure B-3.1 (Click to view)

ITEM 1.d.26
Figure B-5 (Click to view)

ITEM 1.h.11
Figure B4-1 (Click to view)

ITEM 1.h.12
Figure B4-2 (Click to view)

ITEM 1.h.13
Figure B4-3 (Click to view)

ITEM 1.i.2
Inspection Sheet, Derived Waste Storage Area (Click to view)

ITEM 1.i.3
Inspection Sheet, Northwest Storage Area (Room 108) (Click to view)

ITEM 1.i.4
Inspection Sheet, Shielded Storage Area (Click to view)

ITEM 1.i.5
Inspection Sheet, Room 112 (Click to view)

ITEM 1.i.6
Inspection Sheet, WC Storage Area (Click to view)

ITEM 1.o.3
Figure G-3 (Click to view)

ITEM 1.o.4
Figure G-4 (Click to view)

ITEM 1.o.5
Figure G-5 (Click to view)

ITEM 1.s.10
Figure M1-1 (Click to view)

ITEM 1.s.11
Figure M1-7 (Click to view)

ITEM 1.s.12
Figure M1-9 (Click to view)

ITEM 1.s.13
Figure M1-13 (Click to view)

ITEM 1.s.14
Figure M1-13.1 (Click to view)

ITEM 1.s.15
Figure M1-15 (Click to view)

ITEM 1.s.16
Figure M1-16 (Click to view)

ITEM 1.u
Part A Application (Click to view)